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Editorial Staff

Geo. S. Demuth and E. R. Root, Editors — H. H. Root, Assistant Editor — H. G. Rowe, M'n'g Editor

Honey--Wanted--Honey

WE are always in the market for honey. Mail fair-sized sample of extracted, state how much you have, how packed and your lowest price, delivered Cincinnati or f. o. b. your station. Comb Honey, state how graded and how packed.

C. H. W. Weber & Company
Cincinnati, Ohio

Mr. Beekeeper

We have a large plant especially equipped to manufacture the supplies that you use. We guarantee all materials and workmanship. We ship anywhere. We allow early order discounts and make prompt shipments. **We pay the highest cash and trade prices for beeswax. Write for free illustrated catalog today.**

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224-230 WEST HURON STREET, CHICAGO, ILLINOIS.

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Friction-Top Pails

	25	50	100	200	500	1000
5-lb.	$2.00	$3.65	$7.00	$13.75	$33.00	$64.00
10-lb.	3.00	5.25	10.25	20.00	48.00	94.00

Above pails are packed 50 to carton and will keep bright and clean until time of using. Above prices are f. o. b. cars Lansing or Baltimore as you prefer. Our 2½-lb. cans are packed 60 to carton, and are $2.80 per carton, 5 cartons for $13.25, 10 cartons for $25.00.

60-lb. cans, 2 cans to case, f. o. b. cars **Lansing.**	**"A" grade** tin paste for labels.
Per case $1.25	Per pint $0.25
10 cases for 12.00	Per quart ..... .45
25 cases for 29.00	Gallon 1.50
	Postage extra.

Glassware

	1 case.	10 cases.	30 cases.
6½-oz. tumbler, 48 to case	$1.35	$13.00	$37.00
16-oz. Round Jars, 24 to case	1.30	12.50	36.00

Corrugated Paper Shipping Cases

These cases provide an inexpensive package for handling comb honey. They are partitioned so that each section is in its own compartment. They fill railroad requirements but must be crated for shipment. Corrugated paper shipping cases holding—

	10	50	100
24 4¼x4¼x1⅞-inch sections	2.25	$11.00	$21.50
24 4¼x4¼x1½-inch sections	2.00	9.75	19.00
24 4 x5 x1⅜-inch sections	1.95	9.50	18.00

We also furnish lithographed honey pails, cartons for comb honey, display and wood comb honey cases.

M. H. HUNT & SON

510 North Cedar Street. *Lansing, Michigan*

HONEY MARKETS

U. S. GOVERNMENT MARKET REPORT.

Information from Producing Areas (first half of September).

CALIFORNIA POINTS: Southern California.—Bees generally well supplied for winter. Some are still gathering a small surplus from blue gum, blue curl, etc. Much American foul brood reported. Both here and in the northern part of the state, it is claimed that much honey is being shipped in from the mountain states and the northwest and sold more cheaply than local producers are asking. Light amber sage has sold in ton lots at 10c per lb; amber, various flavors, 8½c. Buyers offering 12-13c per lb. for new white orange honey. Beeswax has sold at 22-23c per lb. A carlot of light amber alfalfa sold f. o. b. the Imperial Valley at 7⅝c per lb.; 2 cars at 7½c. Northern California. — This year's star thistle honey, which has just been extracted, is reported not quite so bright in color as last season's. The crop is estimated as one-fourth to one-third of normal. Some honeydew honey is being secured from the oaks. Most bees are expected to have sufficient stores for the winter. Last year's star thistle honey is selling for 8-9c per lb. for the better grades. Growers generally asking 10-11c per lb. for best grade 1924 honey; some low as 9c per lb. in carlots. Beeswax is selling at 21-25c per lb.

INTERMOUNTAIN REGION. — The main crop is now nearly all extracted, but bees are still working on sweet clover and other plants when there is bloom, for winter stores. The drouth has killed some sweet clover, especially in Idaho, where conditions are unusually spotted. In all states, however, the yield was spotted, some beekeepers getting a good crop while others will have to feed. In Montana the bees are reported strong and heavy with stores. The crop in western Colorado appears smaller than was first estimated, and many beekeepers must feed for winter. Other parts of the state, however, report bees in fine shape and breeding up heavily for the time of year. In New Mexico, the crop ranges from one-fourth to a full crop. Inquiry for carlots has been abundant, but price offered has generally been 8½c per lb. for extracted white sweet clover and alfalfa, and most beekeepers are holding for 9c per lb. or higher. Numerous carloads, however, have been reported sold at the following figures: 7½c, 8½c, 8¾c, 9c, 9½c and 10c per lb. Single 60s sold at 10-12c; ton lots, 8½-11c; small pails 11-13c per lb. Light amber extracted, single 60s, 9-11c; small pails, 10c per lb. Comb, white alfalfa, white sweet clover or mixed, has sold in carlots at $4.50, $4.75 and $5.00 per case for fancy; $3.80, $4.00, $4.25, $4.50, $4.60 for choice; small lots fancy, $4.75 per case; one sale reported of $3.75 per case for No. 1; $3.25 for No. 2; white to light amber, No. 1, $4.75; No. 2, $4.00 per case.

ARIZONA POINTS.—Practically no flow for a month account dry, hot weather. Some beekeepers have done well, but the crop as a whole is short. The alfalfa honey is said to be of the best quality in years. One carlot amber extracted sold at 7¼c per lb.

TEXAS POINTS.—Due to dry weather, bees are storing almost no nectar, except a little from cotton, and even that is short. Broomweed is in bloom, but needs rain to make it yield nectar. Little fall honey can be secured without rain. Beekeepers are arranging honey displays at several county fairs. Few sales honey reported. Beeswax has sold at 22c cash for light, 25c in trade, 18-20c per lb. for dark.

EAST CENTRAL AND NORTH CENTRAL STATES.—In Ohio cool weather has stopped the extended flow from alsike. Michigan and Wisconsin report smaller crops of white honey on the average than last year. Prospects are that fall flow will be light unless it warms up, and that some feeding back will be necessary. Comb crop very short. Clover looks very promising for next year. Demand has been good, and honey has been moving well. White clover and basswood extracted has sold in carlots at 9¼c and 10c per lb., with several cars at 9½c per lb., ton lots, 9½-12½c; single 60s, 12-15c; small pails, wholesale, 12-16c per lb. White comb, fancy and No. 1 has sold at $4.50-5.50 per 24-section case; few No. 1 at $4.25; mostly around $5.00; No. 2, $3.75-4.50 per case. Beeswax, 26-27c per lb.

NORTHEASTERN STATES.—Following a light crop of white honey, cold, wet or cloudy weather prevented bees from working much on buckwheat, and although a few good yields are reported, the buckwheat flow will not generally run over one-half crop. Asters and goldenrod may provide a surplus, but if not, feeding will have to be resorted to for many bees have not made a living this month. Comb crop very light. Honey is moving well. White clover and basswood extracted has sold in ton lots at 10-13c per lb., single 60s, 12½-15c; small pails, 14-16c; buckwheat, carlot 8½c; ton lots, 8-10c; single 60s, 9½-10c per lb. Several cars of white comb have sold, fancy, $4.75-5.00; No. 1, $4.35-4.50; No. 2, $3.25-3.50; small lots, mostly $5.00-5.50 per case.

SOUTHEASTERN STATES.—Fall honey plants in Louisiana are far behind normal, due to three months drouth. Swarms are said to be few and small in numbers also as a result of the poor supply of pollen. There is ample supply of food on the hives, however, and the condition of the bees is good. Queens are not laying much in Georgia, but colonies are generally in good condition. Lack of moisture has cut down the honey flow. Rain also needed in Alabama, but bees are in better shape than last year at this time. Crop outlook good in Florida from wild sunflower, and bees are storing considerable honey on the edge of the Everglades. Amber extracted has sold in barrels at 6-8c; in cans, 8½c per lb.; light amber in barrels, 8-10c per lb. Tupelo honey is generally being held for higher prices.

H. C. TAYLOR.
Chief of Bureau.

From Producers' Associations.

The intermountain region as a whole has a smaller honey crop to record than even last year. There is only here and there a locality where the crop is from fair to good, but in most places it is small.

The quality of the honey is on an average very nice. Demand for comb honey is good, and a number of cars have already been shipped. Call for extracted in carlot is fair, local and nearby demand is good.

The Colorado Honey Producers' Assn.,
Denver, Colo. F. Rauchfuss, Sec.

Owing to long continued drought the fall honey crop of Texas will be cut very short and not more than 50 per cent of a normal fall crop will be secured. Prices on honey are ruling rather strong at about 10c basis wholesale for extracted honey and 14c basis wholesale for bulk comb honey. Stocks are being rapidly cleaned up and little surplus honey will be carried into winter. Colony conditions are good, but floral conditions are suffering from continued drought.

Texas Honey Producers' Assn.,
San Antonio, Tex. E. G. LeStourgeon, Mgr.

Special Foreign Quotation.

LIVERPOOL.—The honey market has kept very steady during the past month and prices are being well maintained. With the approach of winter, we think we should look forward to prospects of better business, and therefore a buoyant market. 530 barrels have been sold in Liverpool and new arrivals amount to 638. The value in American currency for extracted honey is about 11½c per lb. Beeswax: There was only a limited demand for this during the past month and prices have not varied much. The value in American currency is about 31½c per lb. Taylor & Co.

Liverpool, Eng., Sept. 5, 1924.

The A. I. Root Company's Report.

Since our last report we have received the following lots of honey: Several small shipments (approximately 60 cases) of local white clover comb honey at $4.80, $4.50 and $4.25, f. o. b. shipping points. Extracted honey receipts are as follows: 4 carloads sweet clover and alfalfa and 13,000 pounds in less than carload shipments at 9c; 1 carload white to water-white catclaw at 8c and 8½c; 1 carload western light amber alfalfa at 7½c; 1 carload white to water-white orange at 11 3/10c delivered here; 1 carload white clover and 3163 pounds in less than carload shipments at 10c, delivered here. All other prices were f. o. b. shipping points.

Honey Producers' Monthly Report.

Early in April we sent to actual honey producers the following questions:

1. What is the average yield per colony corrected to date this season in your locality? Give in pounds. (a) Extracted honey? (b) Comb honey?
2. How does this compare with the average yield for your locality? Give answer in per cent.
3. What per cent of the honey produced in your locality has already left the hands of the producers?
4. What prices are producers in your locality now receiving for the new crop at their station in large lots, carload or entire crop? (a) For extracted honey, per pound? (b) For comb honey, fancy and No. 1, per case?
5. What are prices when sold to retailers in case lots in your locality? (a) Extracted honey in 5-lb. pails, or other retail packages, in terms of 5-lb. pails? (b) Comb honey, fancy and No. 1, per case?
6. What is the retail price to consumers in your locality? (a) Extracted honey in 5-lb. pails, or other retail packages in terms of 5-lb. pails? (b) Comb honey, fancy and No. 1, per section?
7. How is honey now moving on the market in your locality? Give answer in one word, as slow, fair or rapid.

The answers as reported are as follows:

State.	Reported by:	Av. yield per colony. Ex.	Av. yield per colony. Comb.	Pct. of aver. Yield.	Crop Sold.	In large lots. Ex.	In large lots. Comb.	In small lots. Ex.	In small lots. Comb.	Retail prices. Ex.	Retail prices. Comb.	Movement.
Ala.	J. M. Cutts	5			10			$.75	4.80	$1.00	$.30	Fair
Ala.	J. C. Dickman	40		100	60	.12½				1.00		Fair
Ark.	J. Johnson		10	10	50						.25	Rapid
Ark.	J. V. Ormond			75								
Cal.	M. C. Richter	10		15	3					1.50		Fair
Cal.	Geo. Larinan					.12½				1.00		Fair
Cal.	M. H. Mendleson									1.15		Fair
Cal.	L. L. Andrews	15	0	20	75	.12½		.75		1.00		Fair
Cal.	M. A. Saylor	30	20	60	50	.09	3.60	.70		.90	.25	Fair
Col.	B. W. Hopper	70	15	75	25	.12½	5.00	.65	5.00	.85	.25	Rapid
Col.	J. A. Green	90	60	75	10	.09		.75	4.50	.95	.25	Fair
Conn.	A. Latham	50	35	85	4			1.00	6.30	1.25	.35	Slow
Conn.	A. W. Yates	20	20	25	5			1.00	7.50	1.30	.40	Slow
Fla.	C. C. Cook	80		150	75	.08		.75		.95		Fair
Fla.	H. Hewitt	50		100	50	.08		.75		1.00		Rapid
Ga.	I. J. Wilder	80	50	120	50	.13	4.75					Fair
Ida.	J. E. Miller	80	40	75		.09½		.60	4.75	.75	.32	Fair
Ill.	A. C. Baxter	60	28	50	0					1.25	.35	Slow
Ill.	A. L. Kildow	25	15	25	0					.75	.25	
Ind.	Jay Smith	75	40	125	50			1.05		1.25	.35	Fair
Ind.	J. C. Johnson	100	80	150	25			.90	4.90	1.15	.28	Slow
Ind.	E. S. Miller	100	75	125	20			.80	5.75	1.00	.27	Fair
Ia.	W. S. Pangburn	125	75	75	50	.11	4.75	.75		.90	.25	Rapid
Ia.	F. Coverdale	50	30	100	2			.75	4.75	1.00	.28	Slow
La.	E. C. Davis	100		125	50	.08½	5.50	.75	6.00	1.00	.35	Fair
Me.	O B. Griffin	28	15	45	15				7.20	1.35	.38	Slow
Md.	S. G. Crocker	40	24	75	25			1.00	5.00	1.35	.38	Fair
Mich.	F. Markham	125		125	30	.11		.80		1.25	.25	Rapid
Mich.	B. F. Kindig	40		50	5			.85		1.15	.28	Fair
Mich.	Ira D. Bartlett	70		70	5			.75		1.00		Fair
Mo.	J. H. Fisbeck	40		75	1			1.00		1.25		Slow
Mo.	J. M. Romberger	50	50	80	75	.08	4.75	.80	5.50	1.00	.32	Slow
Neb.	J. H. Wagner	135	60	90	10	.08¾	3.60	.75	4.50	1.00	.25	Slow
Nev.	T. V. Damon		15	30		.15	5.00	.75	5.50	1.00	.32	Slow
N.J	E. G. Carr	15		5					6.00	1.25	.40	Fair
N.Y.	Geo B. Howe	25		25		.11				1.00	.35	Fair
N.Y.	Adams & Myers	100	50	130	10	.11	5.00	.90	6.00	1.25	.30	Rapid
N.Y.	F. W. Lesser	50	25	50	5	.11			5.25	1.00	.30	Fair
N.Y.	R. B. Willson	60	20	60	20	.09½	4.80			1.15	.32	Fair
N.C.	C. S. Baumgarner		50	150				1.00		1.40	.30	Fair
Ohio.	R. D. Hiatt	85	60	100	50			1.00	6.00	1.25	.35	Fair
Ohio.	J. F. Moore	80		100	50	.10	4.80	.85		1.10	.30	Fair
Ohio.	F. Leininger	60	48	20	50	.12	5.00					Rapid
Okla.	Jos. Heueisen	40		70	10					1.00		Fair
Okla.	C. F. Stiles	15		40	20			.90	6.50	1.15	.32	Fair
Ore.	H. A. Scullen	60		110	10			.75	4.12	1.00	.25	Fair
Pa.	D. C. Gilham	10	5	25				1.05	7.20	1.40	.40	Fair
Pa.	H. Beaver	80	40	100	10	.10	4.00	.70	4.25	.85	.22	Fair
S.C.	A. S. Conradi	40	20		50			1.00		1.00	.35	Fair
Tenn.	J. M. Buchanan	50	30	75	25					1.25	.35	Slow
Tex.	H. B. Parks	65		90	85	.10		.70		.85		Fair
Tex.	T. A. Bowden	50		100	50			.80		1.10		Fair
Tex.	J. N. Mayes	40	40	15	100	.11		.60		.75		Rapid
Vt.	J. E. Crane	30	18				6.00	1.25		1.25	.35	Slow
Va.	T. C. Asher	25	15	30	35			1.10	6.00	1.25	.30	Fair
Wash.	W. L. Cox	150	10	100	10	.12	5.00	.75	5.50	1.00	.35	Slow
Wash.	G. W. B. Saxton	75		75	10	.10			6.50	.75		Fair
W.Va.	T. K. Massie		40	80	90					2.00	.42	Rapid
Wis.	N. E. France	90	45	95	10	.13½	5.00	.90	5.00	1.10	.28	Fair
Wis.	E. Hassinger, Jr.	45		45	30					1.00	.35	Fair
Wis.	H. F. Wilson	60		90	5	.12½			6.00	1.15	.35	Fair

XUM

HONEY CONTAINERS

2½-lb. cans, per carton of 100...$4.25
5-lb. pails, per carton of 50... 3.50
5-lb. pails, per carton of 100.. 6.75
10-lb. pails, per carton of 50... 5.00
Above packed in cartons which are dust-proof, light and easy to handle, keeping your cans and pails clean until you are ready to use them.
5-lb. pails, per case of 12.....$1.10
10-lb. pails, per case of 6..... .90
60-lb. cans, 1 per case..... .90
60-lb. cans, 2 per case..... 1.25
Above packed in wooden reshipping cases.

GLASS JARS

8-oz. honey capacity, tall or fluted, per case of 24 .....$1.05
8-oz. honey capacity, medium, per case of 24 ..... .95
16-oz. honey capacity, tall or fluted, per case of 24 ..... 1.35
16-oz. honey capacity, medium, per case of 24 ..... 1.25
32-oz. honey capacity, per case of 12 ..... 1.00
All above prices f. o. b. Reedsville, Wis. Write for prices on larger quantities of pails and glass jars, stating number and sizes wanted.

A. H. RUSCH & SON CO.
REEDSVILLE, WISCONSIN

TO NEW YORK STATE BEEKEEPERS

We are now prepared to give you our usual prompt SERVICE in all honey containers. Our pails and cans are strong and well made, packed in dust-proof cartons. Prices are as follows:
2½-lb. cans, 60 in carton.....$2.70
5 lb. pails, 50 in carton..... 3.50
10-lb. pails, 50 in carton..... 5.00
5-gal. square cans, two in box with handholes — 10 boxes, $12.00; 50 boxes, $57.00; 100 boxes for 110.00
Glass jars and tumblers in reshipping cases.
16-oz. round jars, 24 in case.....$1.35
32-oz. round jars, 12 in case..... 1.00
6½-oz. tumblers, 48 in case..... 1.35
6½-oz. tumblers, 24 in case..... .70

Corrugated paper shipping cases.
For 4¼x4¼x1⅞ sections, per 10, $2.25; per 100 .....$21.50
For 4¼x4¼x1½ sections, per 10, $2.00; per 100 ..... 19.00
For 4x5x1⅞ sections, per 10, $1.95; per 100 ..... 18.50
Also a complete stock of cartons and display cases and tin paste. All of the above f. o. b. Syracuse, N. Y., at Root prices.
Root's lithographed pails, f. o. b. factory.
For the best SERVICE send your orders for all Root's goods to SYRACUSE.

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If they are infected with American foul brood, use

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Glendale, Ohio

Send your order to H. & H. Thank you.

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Special Discount

On all orders for bee supplies deduct the following discount from our catalogue prices:

Orders for $10.00 and over.....10%
Orders for $25.00 and over.....15%
All orders for $100.00 and over.....20%

GLASS AND TIN HONEY CONTAINERS.

Prices are net, no discount on containers.

2½-lb. cans in crates of 100	$4.00 a crate
5-lb. pails, in crates of 100	6.50 a crate
10-lb. pails, in crates of 50	5.00 a crate
160-lb. kegs	1.20 each

For packing extracted honey we recommend our 160-lb. keg. We prefer to purchase both Clover and Buckwheat Honey packed in these kegs.

GLASS JARS WITH GOLD LACQUERED, WAX-LINED SCREW CAPS.

8-oz. honey capacity, 3-doz. per carton	$1.35 per carton
16-oz. honey capacity, 2-doz. per carton	1.20 per carton
3-lb. or qt. capacity, 1-doz. per carton	.90 per carton

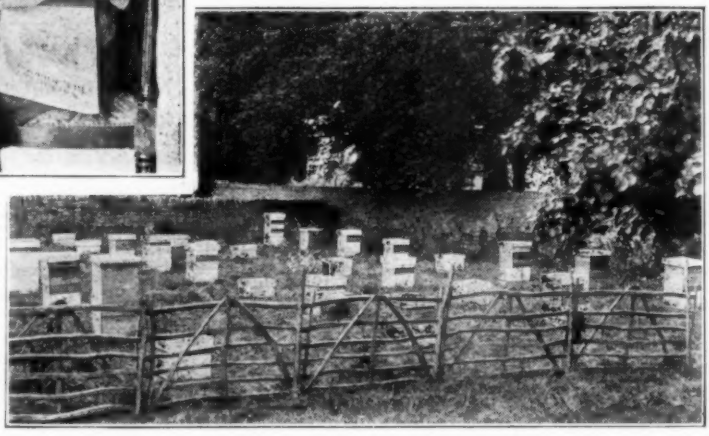
HOFFMAN & HAUCK, INC.

Ozone Park, New York

Meet MR. W. R. MANLEY,
of Bladon, Woodstock, England

You would like Manley for, to him, beekeeping is a real profession. He is one of England's live-wire beekeepers and a successful honey producer. He has gotten away from the English hive and uses a big hive, some Modified Dadants, and some of his own make.

The picture of his apiary shows them in use.



Manley's apiary, sizeable, well kept, hustling.

Manley is a stickler for efficiency. For this reason he has placed Dadant's Wired Foundation in all of his hives.

Let him tell you what he thinks of it:

"I have been using a good deal of Dadant's Wired Foundation. I think there is no doubt that it is the most useful invention brought out of late years. Of course, to get full advantage of it, the frames especially made with wedge top and slotted bottom are required, but it is useful in any kind of frame since there cannot possibly be any sagging or stretching of the foundation.

"I find, that without any other wiring whatever, I get nearly 100 per cent of fine combs built right down to the bottom-bar, a result I have always failed to get in any other way."

When you plan your foundation buying--- consider what this means to you

Dadant & Sons, Hamilton, Illinois

Makers of Dadant's Famous Foundations
Wired---Plain---Surplus
Made only of pure beeswax

Sold by dealers everywhere--- Write for name of nearest dealer.

GLEANINGS IN BEE CULTURE

OCTOBER, 1924

EDITORIAL

OUR CORNERSTONE

REMEMBER at all times that improved bee culture is our end and aim, and we trust no one will hesitate to give any facts from experience because they may tend to overthrow any particular person or "hobby." If any of our special plans don't work, or if anything we advertise has had its value overestimated, here in these pages is the place of all others to set the error right.—From A. I. Root's "introductory" in the first issue of Gleanings in Bee Culture, January 1, 1873.

Buckwheat Yields During Afternoon.

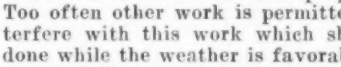
SEVERAL beekeepers located in the province of Quebec, Canada, report that in their locality buckwheat yields nectar best during the afternoon. In the great buckwheat region of New York and Pennsylvania this plant usually yields best during the forenoon. So marked is this peculiarity that beekeepers in this region expect the bees to quit working on buckwheat almost entirely at about noon or shortly thereafter, remaining idle about the hives the rest of the day, usually in an ugly mood. This is one of the points in beekeeping in the buckwheat region supposed to have been settled long ago and some of thetext-books on beekeeping mention this peculiarity of the buckwheat honey flow. It is somewhat disconcerting to have such a well established fact (?) upset entirely simply by going a few hundred miles north.

The Meeting at Quebec.

THE Seventh International Apicultural Congress, which was held in Quebec, Canada, Sept. 1 to 4, was a delightful affair and will long be remembered by those who were fortunate enough to attend. Most of the sessions were held in two sections, the papers being read in French in one section and in English in the other. Although only four delegates from Europe were present, they, together with the members from the province of Quebec (which is a French-speaking province) made up a large French-speaking section. The English section was composed of delegates and visitors from the United States and the other provinces of Canada. Those of us from the United States who came in contact with so many French-speaking people, who also speak English even better than most Americans, were impressed with our deficiency in being able to speak but one language.

The delegates from Europe were Leon Tombu, from Belgium; A. Mayor, from Switzerland; Ph. J. Baldensperger, from France, and Luigi Castullo, from Italy. The government of Peru, South America, was officially represented by her consul in Quebec; the American Honey Producers' League was represented by C. P. Dadant, editor of the American Bee Journal, and the U. S. Department of Agriculture was represented by Dr. E. F. Phillips, who is leaving the department, and James I. Hambleton, the newly-appointed apiculturist. Most of the Canadian provinces were represented and many of the state associations in this country sent delegates.

The papers read at this meeting are of unusual merit and the published proceedings of this Congress will be a real acquisition to the beekeeper's library. Mr. C. Vaillancourt of the Department of Agriculture for the province of Quebec, deserves great credit for the work he did to make this meeting a success.



Prepare Bees for Winter This Month.

CONSIDERABLE space in this issue is devoted to the important subject of preparing bees for winter, and the cover page is intended to remind our readers that October is the time for this preparation. Too often other work is permitted to interfere with this work which should be done while the weather is favorable. This is especially true on the farm where other work is always crowding at this season. Especially in localities where the honey crop has been poor, there will be a tendency to neglect this important work. Gleanings urges every beekeeper, whether he has one colony or one thousand, to prepare his bees for winter this month, irrespective of all other work.

One of the Old Masters.

THE Editor recently had a delightful visit with that veteran beekeeper, J. E. Crane, at his home in Middlebury, Vt. Although advanced in years, this grand old man is so keen, alert and jovial that it is difficult to think of him as growing old. The poor season for honey in his locality this year, instead of weakening his enthusiasm or crushing his spirit, apparently had the opposite effect for it afforded him greater opportunity for learning new things about the bees and beekeeping. In this respect there is a striking resemblance between him and the late Dr. Miller.

Is there something about beekeeping that keeps the spirit young in spite of advancing years? The outdoor life, together with the thousands of unsolved problems concerning bees, each challenging the wits of the thinking beekeeper, leading him into the realm of botany, physiology, physics, chemistry, geology, bacteriology and many other ologies as well as merchandising, certainly leaves no time to grow old mentally.

Mr. Crane was one of the first of the old masters to have the vision of beekeeping on a sufficiently large scale to make it a profitable business. The large system of out-apiaries which he built up years ago is now being operated largely by his son, Philip, but the father is in close touch with the details of the business, which is chiefly that of producing fancy comb honey.

With his great wealth of experience, dating back as it does to the days of the box hive, Mr. Crane has for years reviewed each issue of this journal as soon as received, which review appears in the next issue on his page "Siftings." In addition to this he has written many articles for the various bee journals, but best of all he expects to write many more for our readers during the coming years. May he be spared to do this.

Reports on Alcohol-Formalin Solution.

THE report by J. L. Byer in the September issue of this journal, of the recurrence of American foul brood in combs that had been treated with the alcohol-formalin solution, has already resulted in numerous reports from beekeepers who have tried out this treatment this season. Only one other report of failure has been received, this having come to this office indirectly.

It is apparent from these reports that the alcohol-formalin treatment has been tried out this season on a surprisingly large scale. The total number of combs that have been saved from the melting pot in the United States alone, must total many hundred thousand. In one case reported, 10,000 combs were sterilized and given back to the bees without a single recurrence of the disease and in another, 7,000 combs were sterilized and given back to the colonies, likewise without a single recurrence. This is remarkable, considering that this is the first season this disinfectant has been generally used, as there must be much still to be learned in the application of this treatment. Those who have reported the cost of sterilizing combs say that it is nearly four cents per comb for material. Apparently but few have secured data on the cost in labor since the work is done during odd moments, making it difficult to keep accurate records of the time actually spent. In one case an excessive amount of the solution was consumed which made the cost of material too high to be considered practical.

Beekeepers should not permit their enthusiasm in the use of this new disinfectant to induce them to spend time and money in sterilizing inferior combs. When a poor comb is found in a diseased colony it is best to consign it to the melting pot.

Preventing Crystallization in Sugar Syrup.

IN his article in this issue, Morley Pettit describes his method of making syrup for fall feeding on a large scale without the use of acid to prevent granulation. Many beekeepers have been successful year after year, in feeding syrup made without acid; many others, however, have experienced trouble not only from the syrup granulating in the combs after being stored, but also because of the crystals that formed in the feeders and clogged up the feeding holes before the bees were able to store it.

The usual formula for making syrup for fall feeding is two parts of sugar to one part of water, either by weight or by measure. When this proportion is used, care must be taken to prevent any variation that would result in the syrup being heavier than intended for if by the evaporation of a little of the water while heating or through some other cause, the syrup is made slightly thicker than two to one, there may be trouble from crystallization when acid is not used. Also, heat must be applied long enough to be sure that all crystals are completely dissolved. The method of feeding also makes a difference in the tendency of the syrup to crystallize after

being stored in the combs. Experiments conducted here last fall and the fall before last, show that the two to one syrup fed while hot, almost invariably granulates in the combs soon after being stored, while that fed cold does not. Also syrup fed in feeders that induce the bees to take it rapidly may granulate in the combs even when fed cold. The syrup on being tested was found to have been inverted to a greater degree when fed slowly than when fed rapidly, indicating that the bees do not modify it sufficiently to prevent crystallization when fed rapidly.

Those who expect to make syrup without acid should therefore feed the syrup cold in a friction-top pail feeder having only about 30 holes punched in the cover to prevent too rapid storing. This brings up the question whether feeding slowly may not use up more of the vitality of the bees than rapid feeding. If so, it may be preferable to use acid to prevent granulation rather than to feed slowly. If, however, the vitality of the bees is not affected thereby, then it is certainly desirable to dispense with acid.

A Government bulletin just published discusses the highest concentration which syrup may have without depositing sugar. Beekeepers who feed syrup for winter stores should have this bulletin for reference. It is entitled Technologic Paper No. 259 of the Bureau of Standards, and may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., for 10 cents in cash, not stamps.

When Doctors Disagree.

THE article by Professor H. F. Wilson on sodium hypochlorite as a disinfectant for American foul brood may at first appear rather technical, except to those versed in the methods employed in the bacteriological laboratory. However, it is often well worth while to read carefully such articles even though they are somewhat technical. It is interesting to note, for instance, that the bacteriologist is able to watch the growth of the organism which causes American foul brood. He plants the seeds (spores) of this microscopic plant in the proper kind of soil (culture medium) and, by means of the microscope, watches for growth. In this way he is able to tell whether or not the spores have been killed when placed in contact with a disinfectant and is thus able to judge whether the disinfectant is effective in destroying the disease. Such work is of special interest now since it has been found practicable to sterilize combs containing the dried down scales of American foul brood so they can safely be used again.

It will be remembered that in an article published in the June issue of this journal, Professor Dan H. Jones of the Ontario Agricultural College, reported failure in his efforts to sterilize combs containing scales of American foul brood by means of Be-Helth, a sodium hypochlorite especially prepared for disinfecting hive parts and extracting combs contaminated with American foul brood. In his article in this issue, Professor Wilson records the details of experiments conducted with this disinfectant in which spores of American foul brood were killed when placed in contact with this solution.

Here are two men of science, one in Ontario and the other in Wisconsin, apparently giving a different answer to a question of great importance to beekeepers. Is the difference in results recorded by these two men due to the fact that in one case the comb containing the scales was immersed in the sodium hypochlorite solution while in the other the scales were taken out of the comb?

In the latter case three groups of experiments were tried. In one group the scales were taken out of the comb and ground fine in water, then this water containing the particles of the scale in suspension was put into the disinfectant. In another group of experiments, the scales were taken out of the comb and placed directly in the disinfectant without grinding, and in the third group, the scales were ground up and placed in diluted honey to which the other the disinfectant was added. On the other hand, Professor Jones immersed the comb containing the scales in the disinfectant. As we understand it, sodium hypochlorite is not recommended for disinfecting brood combs containing scales of dried down larvae in American foul brood, but is intended to be used for spraying hive parts and extracting combs contaminated with American foul brood. Some have misunderstood this and have attempted to sterilize brood combs by immersing them in the solution as is done with the alcohol-formalin solution. It has also been recommended for sterilizing honey from diseased colonies so that it can be fed back to the bees, but since such honey can be easily sterilized by boiling it in dilute form for 30 minutes in a closed vessel, it is doubtful if it will be used much in this way. If sodium-hypochlorite comes into general use in treating foul brood it will probably be used as a spray in disinfecting hive parts.

SUCCESSFUL OUTDOOR WINTERING

By Morley Pettit

The Latest Developments in Wintering Methods Applied on an Extensive Scale

Four years ago Gleanings published an article of mine on this subject and it interests me to note how our ideas on some points of management have changed even in that short time. The fundamentals of any science do not change; but we learn more about them as time goes by, so long as we are open-minded enough to learn. The food chamber, which was rapidly coming into use then, has become established in the equipment of many of the best beekeepers, and the experience of the remarkably unfavorable spring just past, leads me to admit that it should be a standard Langstroth super in preference to just a shallow. That is what Phillips and Demuth recommended with the announcement of what has since come to be called the "government case," and it may be that our failure to adopt it at the same time is partly responsible where the big quadruple case with very heavy packing has not made good. At any rate, there are quite a number of beekeepers who are convinced that it is quite possible to have too much packing.

I have carefully tested, side by side, the cases with four inches underneath, six inches on all sides and a foot or more on top, and our older cases where the bottom-boards sit on the floor of the case and there is from two to three inches of packing on the sides. These tests have been continued since the introduction of the first big cases we made in 1919 and the colonies in the old cases always average up better in the spring. Some have been in single Langstroth brood-chambers, some in a Langstroth brood-chamber together with a shallow super, and some in the Jumbo with a shallow super and the results are pretty much the same. During the early part of the winter, so long as the weather continues mild, no cluster is formed, but the hives seem to be filled with bees from side to side and from top to bottom. They even hang out on the bridge, with the outside temperature at 20° F., and with the outer entrance of the case reduced to what is commonly called winter proportions, they form a cluster on the outside of the case.

I like the roomy case and as packing material costs us nothing but handling and storage, prefer to make them that way. Then the hives winter drier with no moulding of the combs with bottom packing. That, I believe, is a real advantage of bottom packing, but must admit that it is the only one, unless it makes for better wintering in the straight two-story ten-frame Langstroth hive. At any rate we shall see that no colony in a big case has more than six or eight inches of packing over it this year and perhaps that will give better results.

It is quite an undertaking to arrange colonies for winter so they will require no attention until spring. About the best we can do is to plan for the average winter and take our medicine with a grin when the unusual season comes around to take its toll. Whenever anyone speaks or writes with extreme confidence in these matters the older heads simply nod and look knowing. Of course, I am not one of the older heads, but I am getting where I can nod with them occasionally.

The term wintering means the maintaining of colony strength during the inactive season of the year. If this is successfully accomplished, the building up of colony strength for the season may in most localities of the clover region and in most seasons, be left entirely to the colonies. Successful wintering depends on just a few all-important factors. These are the bees, the stores, the hive and the protection. The bees of each colony must be vigorous and plentiful. The stores must be plentiful and those nearest the center of the cluster pure sweet, preferably sugar syrup. The hive must be large enough to house the colony comfortably and provide ample space for fall and spring brood-rearing. Protection consists of the right amount of insulation on the hive and shelter from strong winds.

Young Bees for Winter.

To make sure of having plenty of young bees for winter, we give careful attention to the queens throughout the active season. Before queens can be reared at home some are purchased from the South and established in nuclei at each apiary. Our own queen-rearing is started as early as possible in all the yards and queen-cells are invariably placed in nuclei, not in colonies. These are cared for in the rounds of regular apiary visits so that as far as possible, there is always a supply of young queens available for replacing those that fail or prepare to swarm. In fact, I try to have a fair surplus at each yard, then cull out the poorer ones. It is quite a game, this selecting of breeders, or rather queen-mothers, and one should not be satisfied to say that each hive has a queen. It is not even enough to say that each hive

has a young queen. I would rather be able to say that each hive has a good queen, and when in this process we find a one-year queen with great sheets of even brood she can stay right where she is. On the other hand when we find in a nucleus a young queen who does not know enough to lay an egg in every cell as she goes along, but skips cells leaving patchy uneven brood, she may be given another chance to see if she can learn to do better, but I certainly will not kill a good one-year queen and replace her with one like that. If she does not improve she can go to the happy hunting grounds even if she cost me a dollar and came from somewhere in the U. S. A.

After seeing that each colony has a good queen we must keep the way clear for her to build up a large family for winter. She needs thousands of cells for laying and ample stores of food for her young. Some years the months of August and early September yield surplus honey, other years nothing is stored after clobers are placed directly over the brood-chambers without excluders. The colonies which have been unpacked during the summer are then placed in winter cases, the aim being to have this done before frosty nights occur as we believe they set their house in order for winter better with their packing around them.

If I considered only the bees, I believe all would be permanently packed in single cases. Good colonies so packed always do well if the season favors. They are less disturbed by weather changes during late spring than those which have been unpacked, and they are not roused by restless neighbors on mild winter days as they are in multiple hive cases. They suffer no inconvenience from changed surroundings as when the whole face of nature is altered by the packing or the unpacking of the apiary. That summer packing helps to control swarming I cannot see, and it does not in our case, for there is just as much swarming impulse in the packed yards as in the unpacked. The big cover shades the su-

The B yard, Pettit Apiaries, arranged for quadruple winter cases. Some of these cases are set up on each side of the apiary for storing shavings used for packing.

ver fails in July. The food chamber covers the latter case and supers of empty combs the former. Everyone of our colonies has both until it is time to remove the latter. It is quite a misfortune for colonies to run short of stores at such a critical time, and almost as much so for them to crowd the brood-chamber with honey. On the other hand a certain amount of pollen in the brood-chamber at the beginning of the fall breeding season, does not worry me at all.

Quadruple Cases Compared with Single.

When cool days come in September and storing is about past, all supers are removed from the hives and food chambers, it is true, but the packing makes the brood-chambers hotter, that is, it keeps them hot all night when they might have some chance to cool off, so I think the one about balances the other.

Single cases cost considerably more than others and they are more bulky and awkard for moving when an apiary has to be moved. They are more expensive to paint, and being always exposed to the weather, require painting oftener than collapsible cases which are stacked in the flat and protected from all the hot sun of summer. They save the annual labor of packing and unpacking, but this is quite counterbalanced by the

labor of lifting the big covers off and on every time the colonies are examined, to say nothing of the stones which must weight them against the wind. If they do not have to be packed and unpacked they do have to be leveled and blocked up annually to prevent the bottoms settling into the ground and rotting away. Still this labor is more or less distributed, and it is some satisfaction when the grind of packing or unpacking yard after yard brings us to single cases which do not have to be done in the same way.

Our cases all have a top space of super depth and over. In some ways it is more convenient examining brood-chamber combs down in this enclosure, especially if the day is cool or windy. Where the apiary is in a pasture field these cases do not get knocked over by cattle as unpacked hives sometimes do. A lot of you fussy beekeepers are going to hold up hands of holy horror at an apiary not being fenced, and I am going to brazenly admit that I prefer closely cropped ground and a super shifted occasionally by cattle to a fenced apiary with long grass wet on dewy mornings and cattle breaking in from time to time.

We have perhaps a third of our bees in single cases, the rest in quadruple. Over a series of years and locations I think we secure about the same results from both and our total of labor on the colonies we unpack annually is somewhat less. If I were going to keep bees without any help, a condition which is beyond my imagination, I think I would use single cases.

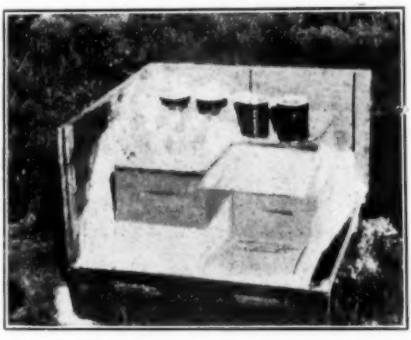
Everyone has his own pet plan of winter cases and there is no use arguing over details of construction so long as they winter the colonies well and are economical of labor and material. I like to put the hives into cases as soon as I can in the fall and leave them there until danger of cold weather is past in the spring. With a heavy stock of feed in food chambers when packing up and first supers with perhaps a surplus of spring honey when unpacking, I do not like the idea of lifting hives up over the edges of solid boxes. Collapsible cases are more convenient and can also be stored away in less space and with less exposure to the weather.

To save time and labor in packing, we find it an advantage to have the bottom sections of quadruple cases made with bottomboards and with bridges for the hives built in. It is a simpler operation for two men to lift hives from their summer bottom-boards to their places behind the fixed bridges of the case than to lift them by their bottom-boards and afterwards adjust bridges, especially in view of the danger of a misplaced bridge allowing loose packing to run down and smother the colony. The extra equipment of the case is inexpensive as it is made of crate material which comes around empty honey pails from the factory.

How the Packing is Done.

Apiary arrangement makes for convenience in packing and unpacking. The hives are in double rows facing outward with just room for the cases between the rows, and the hive spacing is such that when the case bottoms are set and leveled each hive is directly in front of its own corner of a case. The hives are lifted back and sidewise about their own length and width to their winter positions. The sides of the cases are then set up and clamped together at the top corners, the bottoms being held in place by special iron points which catch on the stand section and hold firm without any fastening. The modus operandi of packing up a yard is about as follows:

First the case bottoms are distributed and leveled with a spirit level, using blocks of inch boards saved throughout the season from our carpenter shop operations. Next the hives are lifted into place and the summer stands collected



Quadruple winter case showing construction, position of hives and feed pails.

and stacked for winter storage. Next the two different kinds of sides for cases are distributed, being leaned against the groups of hives ready to go into position. Obviously a day when bees are not flying is to be preferred for all this. Finally the sides are set up and clamped together and shavings which are stored in bags are poured over the hives, just enough to pack around them to about half the depth of the brood-chamber. After that the feed is distributed, two pails to each heavy hive with a food chamber, and three or more pails to lighter ones. After the pails have been inverted over holes in the feeder boards, packing material is poured in over them

until they are just nicely covered. The big flat covers of the cases are now put in place and there is nothing more to do until the bees have removed the feed from the pails and stored it. Following our weekly system of visits we return in about eight days, scratch out the shavings from between the pails and pack it down the side spaces, remove the pails, spread cloths over the holes, a few thicknesses of papers over the cloths and pour shavings over that, or better lay in loosely filled bags. After seeing that there is plenty of air space between packing and covers, the latter are placed and fastened in position for the winter.

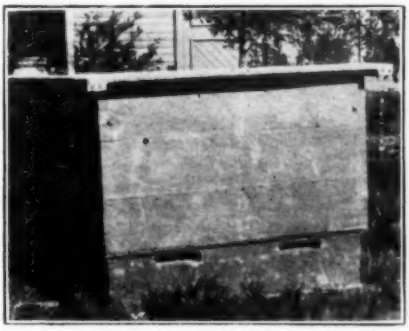
Feed and Feeders.

With food chambers on all hives it may seem superfluous to feed syrup also. Perhaps it is in many cases, but I may be a bit fussy about winter stores. The food chamber is partly filled in spring with what may be inferior honey, and in a dry fall may be partly emptied, or may get fall honey which is also dangerous for winter. In either case, I feel better if I give every colony a couple of ten-pound pails of feed whether it needs it or not, and look upon it simply as a deposit or capital investment which will at least be there for future use, even if it should not return good interest. Ordinarily the last week in September and the first week in October are best for this type of feeding, as brood is emerging for the last time and leaving the empty cells for storage right where it is most likely to be drawn upon by the colony during the early cold part of the winter.

Before settling on the inverted honey pail feeder as standard equipment, I tested various other types and found the pails most satisfactory for our conditions. We use ten-pound pails with the lids perforated and can feed in almost any kind of weather, provided packing is put around them to retain cluster heat when the weather is cold, and to keep robbers from prying under the edges when it happens to turn hot. Those who simply place the pails on the brood frame top-bars and allow the bees to come up around them, miss a great deal of comfort in their feeding. Some use a sheet of roofing material to cover the hive, with holes cut for the bees to get at the feed, but I prefer a feeder-board, which is simply a super cover with holes cut in it so that the pails can be inverted over them. This when packed retains the heat, and makes them take the feed better on a cool night, and when the pails are to be taken off no bees are clustering on them as they would be if allowed to come up.

For making up the syrup we use two old capping cans which hold a thousand pounds of syrup each. A steam coil fits the bottom of the can and has numerous perforations which sends jets of steam in every direction in the syrup, bringing it to a boil in short order. It is connected to the fixed steam pipe by the same steam hose which connects up a capping melter during extracting time but is lifted from one can to the other so that only one is needed. We make the syrup in the usual proportions, and to avoid measuring or weighing we know just what height it will be in a can when the right amount of water has been added to the quantity of sugar.

With boiler pressure at about eighty pounds the steam is turned into about six inches of water in the can. It takes only a few minutes to bring the water to a boil when one man starts pouring in the sugar from the hundred-pound bags, in which we buy it, while another man stirs with a long wooden paddle. As the steam pipe fits the outer corners of the can and shoots its jets towards the middle, there is no caking of sugar



Quadruple case set up and packed for winter.

in the corners, and as there is no fire under the can, scorching is impossible. In half an hour seven hundred pounds of sugar have been poured in and are pretty well dissolved. Condensation from the steam brings the level up gradually and that is why we keep the water content low until the sugar is mostly dissolved. Just at the last, more water is run in with the hose if necessary so that when the grains of sugar have practically all disappeared the level has reached the required height. Operations are immediately started on the second tank and after the syrup has stood just a few minutes to settle, the bottom is explored with the paddle to stir up the last of the granules. Next a valve is opened allowing it to flow down into the pump tank and the steam engine is started up to pump it up into a honey tank for storage.

XUM

With everything going well two men can make up two thousand pounds of syrup in a little over an hour, although with various interruptions that speed would not be maintained for half a day. For one thing the honey pump is not geared fast enough to pump it at that rate, and for all the syrup pumping there is to do it would not pay to change it. At any rate the faithful steam boiler has enabled us to make quite an improvement on the system described four years ago. Our usual consumption of sugar for winter feed is about ten thousand pounds, so the improved system of cooking is quite a time saver.

The pails whether full or empty are stored and handled in the same type of crates used for shipping honey, six pails in each. This makes a convenient unit for storing, carrying or loading on trucks. With proper care both pails and crates will last for years. Some of the first pails used when we adopted this system in 1912 are still in use. Their worst enemies are rust and the boy who removes lids carelessly, jamming them on the edges of the pails, causing leaks. Rust is caused mostly by leaving them on the hives too long after they are empty, until they condense moisture on the inside from the hive. It soon destroys the bottoms unless they are treated. At present honey pails may be bought which are lithographed with a baked on process on the outside and lacquered inside. Our older pails we waxed with a little grease mixed in the wax, to prevent it peeling off too easily. With this process care has to be taken not to fill them with very hot syrup.

I prefer to have the syrup cold for feeding. There is less danger of leakage and it causes less excitement in the colonies. They take it a little more slowly and digest or invert it better. It also saves the fuss of trying to co-ordinate making and feeding so as to get it to the hives before it cools. Syrup in pails, stored in crates, is a part of our standard equipment. There is always some in the store room. At our convenience we can fill up a honey tank or two and at our convenience we can tin it, crate it up and stack it away. When the truck is going out to a yard the load list can include so many crates of feed and the man who is loading goes to the place where feed is always stored and gets them and that is all there is to it. As far as possible, the yards are arranged so the truck can drive drown the rows of hives and distribute the crates of feed where they will be needed.

The T yard, Pettit Apiaries, which is in single winter cases. Note the wind screen made of lath, also the large boxes to hold the top packing in summer.

New Type of Wind Protection.

It is very important that apiaries be protected from strong winds. This applies to all seasons as well as winter. Last June we had occasion to move a yard while a road was being built near it. An apiary was established in an open field where it was windswept. All hives were uniform and they were very evenly arranged. Colonies at the end of the rows became very much stronger than the others owing to drifting. So far as possible I have selected apiary sites with natural shrubbery for shelter. A rounding hill is not of much value unless it has shrubs or trees to stop the wind which will swoop over it. One yard which has been named the T yard, is in such a hallow without shrubbery except on the north east side. They did not winter well and we always intended to erect a windbreak, but somehow did not get it done, until the fall of 1923. Last winter they came

through better than ever before in spite of the adverse spring.

We now make our windscreens in sections six feet high and eight feet long. The lath are four feet long and they are allowed to lap two feet in the middle. That is over the two middle feet of the height the lath are laid tightly together and over the upper and lower two feet spaces they are the width of a lath apart. This arrangement makes a wind screen rather than a wind break and gives real good results. It is very cheaply and quickly constructed and light for trucking to places where needed. We use just two braces, a horizontal and a slanting brace and slant the fence section to meet the latter. The general plan of railroad snow fences gives the idea, only ours is higher, lighter, perhaps less expensive and checks the wind more effectually.

Georgetown, Ont.

EXTRACTING BOTH SIDES AT ONCE

By H. H. Root

The Hodgson Honey Extractor Built Around a New Adaptation of an Old Principle

Some time ago, Mr. Arthur F. Hodgson of Jarvis, Ontario, told me that he had invented a new honey extractor, which would either be a big success or an absolute failure. He thought it would be the former. He also said that he would like me to be present at the practical demonstration, when that time came. I took the liberty of sending an invitation to some of the editors of the bee journals. Mr. H. H. Root took the photographs in connection with this article and he will describe in his own way the illustrations.—R. F. Holtermann.

Extracting both sides of a comb at the same time is not a new principle. Some of the earlier experiments were with extractors built on this principle. In the September first number of Gleanings for 1888 appears an illustration which we here reproduce, showing an extractor in which the combs lie horizontally, being whirled in their own horizontal plane, the honey extracting from both the upper and lower sides at the same time.

Fig. 1.—An early extractor in which the honey extracted from both sides of the comb at the same time. From Gleanings in Bee Culture, Sept. 1, 1888.

In the November first issue of Gleanings for 1893, appears an illustration of Bohn's honey extractor. Reference to this illustration also reproduced here, shows at once that the Bohn extractor is similar in principle to the one mentioned above, except that it stands upright, the combs hanging vertically and whirling in their own vertical plane.

In the October first number of Gleanings for 1888 is a diagram of an extractor featured by the writer's brother, E. R. Root, which gave promise of success as reported at the time. In this extractor the combs, as shown in the old diagram here reproduced, stood upright on end, the bottom-bars being close

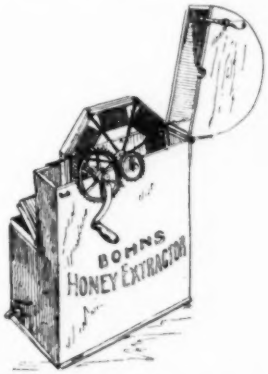


Fig. 2.—An early extractor similar to that shown in Fig. 1, except that the combs are whirled vertically. Reproduced from Gleanings in Bee Culture, Nov. 1, 1893.

to the center and parallel to the center shaft of the reel, the end-bars standing in a radial position like the spokes of a wheel. This is the principle of the extractor which is now receiving considerable attention again in Europe.

Not Practical in Hand Power Machines.

The reader may wonder why an old principle, apparently abandoned years ago, should be revived, or why even experimental work should be done again with these older principles. We must remember that the older extractors were all turned by hand, almost no one giving any thought to power-driven machines. Gasoline engines had not been perfected;

steam outfits were too expensive; electric motors existed only in a few large cities, and water power was rarely available. Turning an extractor fifteen or even ten minutes to separate the honey from the combs was unthinkable when an ordinary extractor with the combs tangent to the circumference (first one side and then the other being turned out) would get the honey out in two or three minutes. The idea of multiplying the number of combs being whirled at one time did not suggest itself, because turning a large number of combs by hand was impracticable.

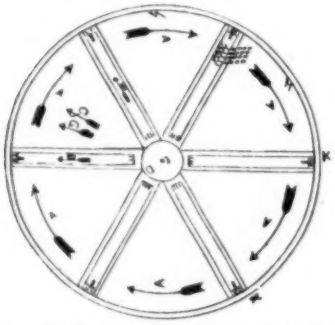


Fig. 3.—Diagram of radial extractor from Gleanings in Bee Culture, Oct. 1, 1888. This is the principle of the extractor now receiving considerable attention in Europe.

The Hodgson honey extractor, strictly speaking, is not of the so-called radial type. While the honey extracts from both sides of the comb at once, the combs (as will be seen by the illustrations) are not placed in the position of the spokes of a wheel. The combs whirl around in their own vertical plane, like the Bohn extractor, the top-bars always being at the outside, so that the natural slope of the cells is somewhat in line with the centrifugal force.

The experiments conducted along similar lines have been open to one or more serious objections, such as the crushing of the combs, the amount of honey left in the cells after extracting, and the longer time required to get the honey out of a given comb. The whole problem simmers down to a consideration of the following questions. Granted that it takes much longer to get the honey out of a comb, when that comb is so placed in the extractor that the centrifugal force is applied equally to both sides at once, will the more compact construction, the resulting simplification of parts, and the elimination of labor connected with reversing, make practicable the use of an extractor holding so large a number of combs that the greater time required to throw the honey out of the cells is thereby of no importance? Furthermore, can the efficiency of this principle be such that the amount of honey left in the cells need not be over one or two per cent of the weight of the uncapped comb of honey before being placed in the extractor?

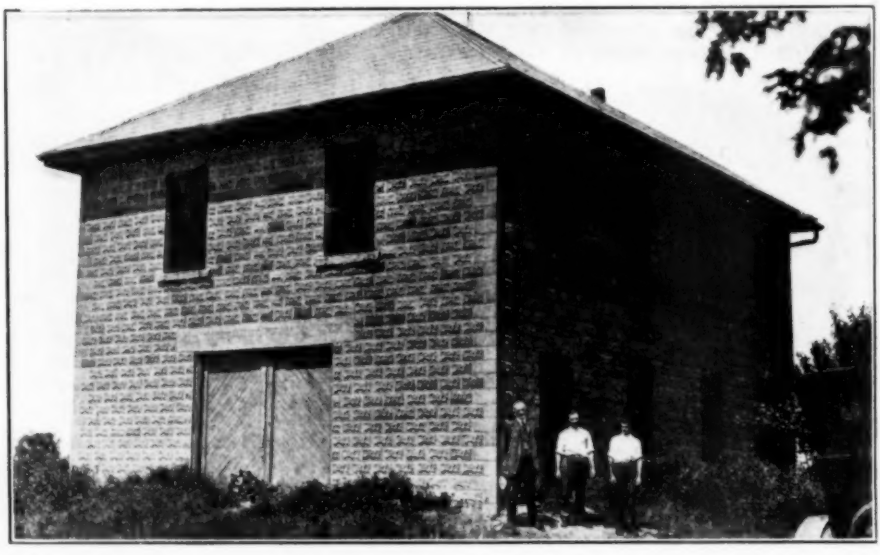


Fig. 4.—Hodgson Bros.' workshop, Jarvis, Ont. The building, 30 x 40 feet, is substantially built of concrete blocks. The first floor is the extracting room, the second the honey storage room and workshop, and the bee-cellar, wholly under ground, has capacity enough to care for considerable expansion of the business. Mr. Hodgson was one of the first in Canada to use the central extracting plant.

Importance of Extracting as Clean as Possible.

Years ago I was one of a group of berry-pickers. Each picker received one cent a pint for the labor of picking the berries. One particular picker frequently picked a hundred pints in a day and

Fig. 5.—Arthur F. and J. William Hodgson at the wheel of their Reo speed wagon. This "team" does all the work in connection with producing, harvesting and selling the crop from nearly 600 colonies of bees.

therefore received the then enormous amount of one dollar for his services. My father, who owned the strawberry patch, discovered that this one picker picked only where the picking was best. He did not go over the plants carefully. He missed a good many and usually left out the small ones altogether. After being admonished to pick clean, that one boy who had been doing such fast work, dropped down to a normal record.

What is true in picking strawberries is true, or should be true, in extracting honey. The careless operator, with only one idea in view, that of extracting the greatest possible amount of honey in an hour, or in a day, can reach an enormous capacity, provided he is willing to leave ten to twenty-five per cent of the honey in the combs. Whether the combs are put back on the hives to be filled again, at once; whether they are cleaned up by the bees for storing through the winter; or whether they are packed away wet, I am convinced that much of the honey left in the cells is a loss.

If the wet combs are put back on the hives, the sudden accession of so great a quantity of unsealed ripe honey excites the bees. They gorge themselves on it and store but a small quantity back in the cells. Rarely do they put new thin honey on top of the thick honey in the bottoms of the cells.

The same thing is true if the combs are exposed outdoors, to be cleaned out by the bees before being stored for winter. The bees have a grand picnic. In their excitement they gorge themselves, and while they undoubtedly store some of this honey, much of it is a loss.

If the combs are stored wet, any considerable amount of honey in the cells attracts moisture and the thin mixture is

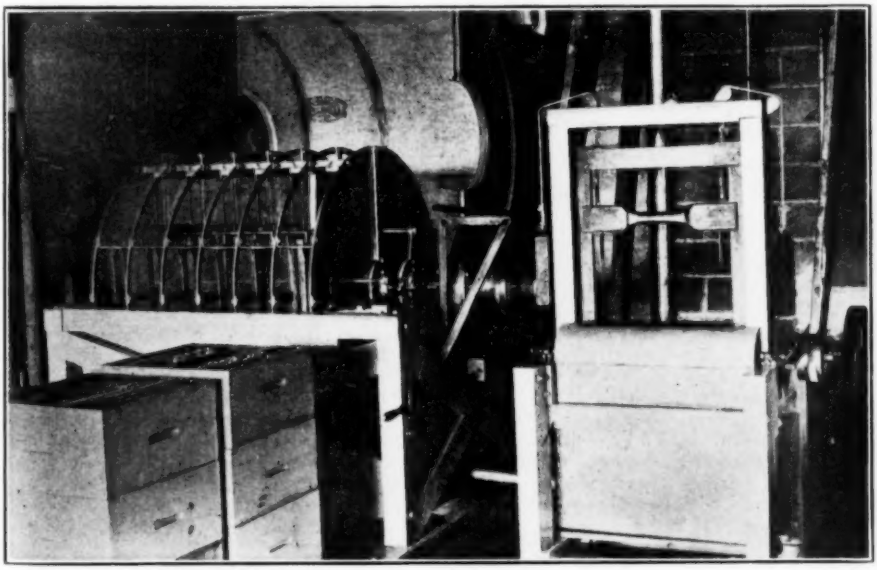


Fig. 6.—General view of the Hodgson extracting plant. The upper half of the extractor can lifts up while the machine is being loaded and unloaded.

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likely to sour, making a bad situation all around.

The honey producer, therefore, is interested not so much in equipment that will extract the greatest quantity per hour, but in that which gets the maximum amount of honey out of the combs in the shortest time and with the minimum of labor.

When honey is extracted from both sides of the comb at once, some experimenters have been deceived into thinking that because there seems to be practically no honey in the bottoms of the cells, that the extracting has been thorough. When both sides of the combs are extracted at once, it is true that the honey leaves the cell-bottoms, but it is apt to collect on the walls of the cells, close to the brim, where it may be detected by means of a small brush or the head of a pin rubbed around the walls of the cells.

turn over 100 revolutions per minute. In this way, the bulk of the honey is out so that the weight in the combs is greatly reduced. There is then no tendency for the combs to pile up on themselves when the speed is increased to 250 or possibly 300 revolutions per minute.

It is doubtful whether an extractor on this principle would ever be practicable if made so small as to take only four or even eight combs. In a modern extractor, as used today, thick honey in an ordinary extractor turning at a speed of 300 to 350 revolutions per minute, can be extracted in three minutes, or a minute and one-half to a side. Nothing would be gained by building a machine to hold only eight combs, if the time required were increased from three minutes to ten minutes. To get capacity, therefore, Mr. Hodgson put in at first, twenty-four combs. Later on, having room for double the number, he increased the number of

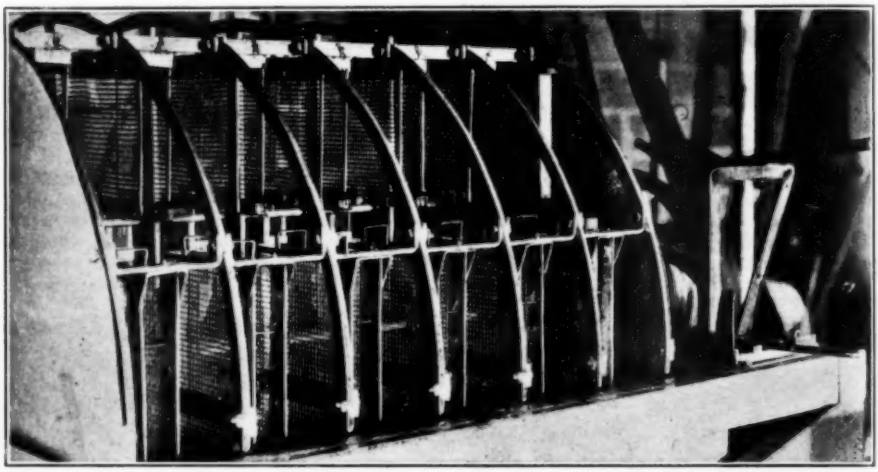

Fig. 7.—Close-up of the big 48-comb "vertical" honey extractor. There are twelve sets of four pockets each. Each set of four pockets revolves in its own vertical plane, the honey extracting from both sides of each comb at the same time.

The first time I saw this extractor, Mr. Hodgson frankly stated that he was not sure that his principle would get all the honey out. He knew that thin honey extracted in this way very much more easily than thick honey. He merely said that he was anxious to see a thorough test made, under all sorts of conditions, with thin honey, with thick honey, with new combs and with old combs.

Mr. Hodgson has overcome the first objection to extractors on this principle. Since he has a capacity of forty-eight combs at one load, he does not mind it if the total time in the extractor is ten or fifteen minutes. During the first minute or perhaps the first two minutes, he makes sure that the extractor does not

comb pockets to forty-eight. In ten minutes, therefore, he extracts forty-eight combs, the extractor meanwhile requiring almost no attention. No reversing is necessary and there are no moving parts to handle. In this way a saving in labor is accomplished.

Our method of testing the thoroughness with which the extracting was done, was as follows: After taking the combs out of the Hodgson vertical extractor, we carefully weighed them, marking the weight of each on the end-bar. We then placed them in an ordinary extractor, subjecting them to a high speed, first on one side and then on the other side. We then weighed the combs again, recording the shrinkage in weight. Under condi-

tions as we had them, the temperature of the room being 75 degrees Fahrenheit and the honey of fair average body, we found that the combs would shrink in weight after the second extracting, from one to two and one-half ounces, which might be called roughly from one to two and one-half per cent, if we assume that the average amount of honey in an uncapped comb is 100 ounces. Such a record I consider fair, for some additional honey will always be secured at a second extracting. This extractor has not yet been tested on combs containing thick, waxy honey, such as is found in some localities, some seasons.

A Practical Uncapping Machine.

I used to think that it would be impossible for anyone to make a practical machine for uncapping all kinds of combs, quickly and easily. Mr. Hodgson has built a wonderfully simple uncapper which uses neither knife nor heat of any kind. The combs pass between two wire brushes about six inches in diameter and as long as the comb, which brushes are revolving in opposite directions at a speed of about 1000 revolutions per minute. The wire, which is a stiff, heavy spring wire, literally tears all cappings away without injuring the comb, reducing the comb to a uniform thickness and at the same time pulverizing the cappings and honey to a mushy condition, from which the honey very readily drains away. In this mushy state, the cappings and honey are pumped some fifteen feet up into the upper story to a tank where the honey settles and the mushy wax is then drawn into a long draining box over a cloth strainer

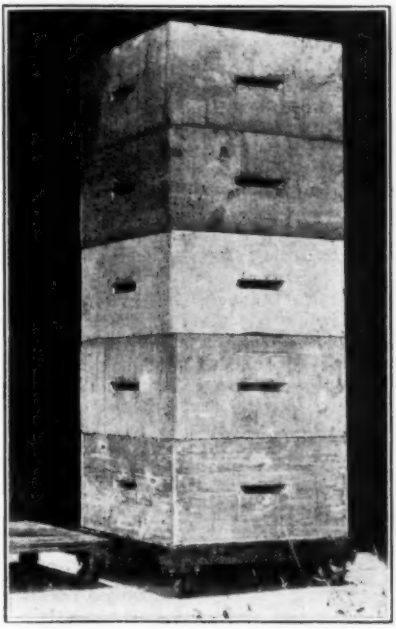

Fig. 8.—A convenience in the honey house. The frame, the same dimensions as a super, is provided with four ball-bearing, swivel castors. A stack of heavy supers, supported on one of these castor bases, is easily pushed around to any position desired. Once in the honey house, further lifting of heavy supers is avoided.

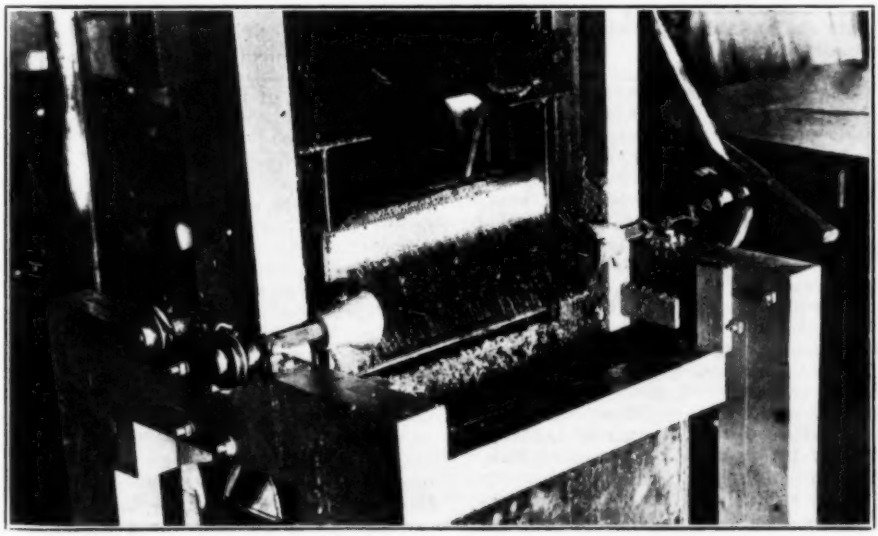

Fig. 9.—The Hodgson uncapping machine. Two wire brushes six inches in diameter, set the right distance apart, are revolved in opposite directions at a speed of about 1000 r. p. m. The cappings and excess thickness of comb are trimmed off to a uniform depth, both sides at once.

through which the honey drains out, leaving the wax looking very much like sawdust.

The uncapping machine is rapid. An inexperienced operator should equal the work of two expert operators handling steam knives—in other words, should easily uncap six combs per minute.

I understand that Mr. Hodgson has applied for letters patent in both Canada and the United States on his two inventions, the honey extractor and the uncapping machine.

Arthur F. Hodgson, the inventor of the machinery, is associated with a brother, John W. Hodgson, the two operating under the firm name of Hodgson Brothers. In 1913 they built a substantial building, 30 x 40 feet, with three floors, counting the bee cellar. A good sized, hand-operated elevator connects the three floors. There are many labor-saving devices, for the two brothers do all the work connected with the handling of some 600 colonies of bees, besides extracting and marketing the crop. They avoid every bit of lifting possible. In their honey-house they use small trucks, with ball-bearing casters at the corners, on which to pile supers of honey. These take very little room, are not expensive, and even though a pile may consist of six or eight heavy supers, it may be pushed about the floor in any direction, with ease.

Mr. Hodgson started in business young, with nothing but a confident belief that beekeeping was really worth while, and that it could be put on a successful commercial basis by a practical application of mechanics to the study of bee nature.

HONEY FOR AUTOMOBILE RADIATORS

By Russel H. Kelty

Improved Methods of Preparing Honey Solution Makes this One of the Best Anti-freeze Mixtures

To James Sprout of Lockport, N. Y., goes the credit for first using a mixture of honey and water as an anti-freeze in his automobile radiator, some eight years ago. Since that time, and especially during recent years, beekeepers and others have become interested in the use of honey for this purpose.

The results obtained from certain experiments, combined with the data obtained from observing honey-solution in actual use under varying conditions, indicate the possibilities present for development.

To insure satisfaction to the user it is paramount that the solution be made properly. Also, after the solution is properly made, the motorist must occasionally examine the level of the solution in the radiator and add sufficient water or alcohol to replace what has evaporated. If these two precautions are observed, the honey-solution is nearly "fool-proof" from the standpoint of an anti-freeze.

Experiments show that for regions where the lowest winter temperature is from zero to five below, a solution made of equal volumes of honey and water should be used. If the temperature is likely to fall to ten or fifteen below zero, the solution should be made of three volumes of honey to two volumes of water. For temperatures of twenty below zero and colder, the solution should be made of two volumes of honey to one volume of water.

How to Improve the Honey Solution.

The original method of making the honey-solution was simply to stir the honey into the water in about equal parts, stirring until all the honey was thoroughly mixed. It was then ready to be poured into the radiator. Such a solution gave satisfaction in most cases.

It was found, after some experimentation, that the circulation of the solution under low temperatures is greatly improved if the dextrin in the honey is precipitated by adding alcohol during the process of making the solution. Furthermore, the addition of the slight amount of alcohol necessary to remove the dextrin noticeably depressed the freezing point of the solution. Wood alcohol is preferable to denatured alcohol for this purpose.

The proper method of making the solution, then, is as follows: After selecting the formula which meets the requirements for winter temperatures of any given district, measure out the proper quantity of honey and of water, adding a little extra water to make up for the loss in evaporation, and heat the water to boiling. Then stir in the honey, stirring until all honey is thoroughly mixed, and raise the temperature of the honey-water solution to the boiling point. This will require additional heat since the boiling point of the honey-water solution is several degrees higher than the boiling point of water. When the honey-water solution has begun to boil, stir in one quart of either wood or denatured alcohol to each three gallons of honey-water solution and allow the mixture to boil from three to five minutes.

The solution should not be allowed to boil much longer than from three to five minutes or else it will become thicker than intended and will not circulate properly. Some difficulty has been experienced in this connection, by those who allowed the solution to boil half an hour or more.

The function of the alcohol, as explained before, is to precipitate the dextrin or gum present in the honey. Most of the alcohol will be used up in this manner, although the finished product retains quite a strong odor of alcohol. The scum which rises to the surface after the alcohol has been boiled in the honey-water solution, should be removed and then the solution is ready for the radiator.

Unripe honey, honeydew honey and honey which has started to ferment, are not satisfactory. Dark honey is apparently as satisfactory as light and is preferable on account of the difference in price.

Honey-solution made of honey and water only, is cloudy and translucent when placed in a glass container. The solution prepared according to instructions just given, adding alcohol, appears as clear as crystal through a test tube or glass dish. On standing for some length of time, this specially prepared solution will show the collection of a brownish mass near the surface, which is largely pollen. Since the brownish mass has the same specific gravity as the remainder of the solution, it is impossible to remove it by centrifuging. Furthermore, the pollen is sufficiently fine to make it difficult to remove by filtering. However, the pollen apparently does no harm and it is possible that it may diminish the tendency for seepage. If the solution, in which the brownish mass has collected, is stirred vigorously, the solution again becomes as clear as crystal.

Some Precautions When Using Honey Solution.

Even though the honey-solution is properly made, to give complete satisfaction certain precautions must be taken. When filling the radiator, the level of the solution should be left about two inches below the over-flow pipe, since honey-solution expands with heat and will run over and waste if the radiator is filled full. It is not advisable to try to use honey-solution in a leaky radiator. Sooner or later the motorist will find that the solution has seeped through the leak, and the stickiness and loss of solution is sure to cause dissatisfaction. All hose connections and the engine head gasket must be tight, since the honey-solution may seep through apparently water-tight connections. A slight leak around the hose connections is not serious except for the objectionable stickiness, but any considerable seepage through the engine head gasket will cause real difficulty. The solution which seeps through, burns down in the cylinder and leaves a gummy residue on the cylinder wall which will hold the piston fast once the motor stops. To start the engine it will be necessary to remove the engine head, wash the gum off the cylinder walls with water and possibly alcohol, and it may be necessary to use a wooden mallet to jar the pistons loose. All of which is, of course, objectionable. This danger can be eliminated, however, by shellacing or greasing the engine-head gasket when it is put on. The same is true of the hose connections.

The motorist should make sure that the radiator overflow pipe is kept open. Otherwise, the formation of steam may cause sufficient pressure to burst one of the hose connections. The result in this case is a spray of hot honey-solution over the engine and car, which makes a very disagreeable mess.

If unripe honey is used, the solution may foam sufficiently when near the boiling point to produce a froth at the outlet of the overflow pipe. In this case the fan scatters the froth over the engine and interior of the hood.

During severe winter weather it is advisable to protect the lower six inches of the radiator, especially in cars without water pumps. Otherwise the solution may become too cold in the bottom of the tubes to circulate properly, in which case the solution in the water-jacket around the cylinder walls becomes hot enough to steam with a resulting loss of solution through the overflow pipe. If the solution commences to steam for this reason, the motorist should stop the engine and let the car stand from two to five minutes, with a blanket over the radiator. The cold solution in the bottom of the tubes will then warm up sufficiently to circulate freely without steaming. Ford owners in colder climates will find this "chest-protector" especially valuable, and by using this device will find that they can get perfect circulation in very severe temperatures.

The motorist should occasionally inspect the level of the solution in the radiator, and if it is low, more water or alcohol should be added just previous to starting the engine for a trip. If the solution loses enough water from evaporation to become too thick to circulate freely, the heavy solution in the water-jacket next to the cylinder walls will commence to carmelize and will eventually fry down into a charcoal-like mass of carbon. We know of but one case of this kind, which was a result of making a

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two hundred mile drive at an average speed of about thirty miles an hour, on a bitter cold day, in a car whose radiator holds but eight quarts. There was no protector used over the lower part of the radiator and the solution was not correctly made, being too thick to begin with.

In severe winter weather, when the mercury drops to fifteen below and more, especially when the two to one solution is being used, the addition of two quarts of denatured, or preferably wood alcohol, to the radiator full of solution improves the circulation under low temperatures greatly and depresses the freezing point noticeably. This is especially true of cars without water pumps or with small capacity radiators with water pumps. One motorist, who was having considerable difficulty with an eight-quart radiator because the honey-solution would boil over if he drove fast in cold weather, had no further trouble after adding two quarts of alcohol. For some reason the alcohol does not disappear from the honey-solution as rapidly as it does from a water-alcohol solution. We know of one instance where two quarts of alcohol were added to a radiator full of solution, in which the car, driven back and forth to work, and around town, during five weeks of winter weather, evaporated only one-half pint of alcohol from the radiator.

The temperature at which the honey-solution freezes, or more correctly speaking, "slushes," varies with the amount of honey present. However, since the expansion of the solution at freezing is negligible, no damage is done to the radiator tubes if the mercury suddenly drops to a low level. For instance, if one were using a solution made of equal volumes of honey and water, and the temperature should suddenly drop to twenty below, the cores in the radiator would not burst as in the case of a weak alcohol-water solution.

Should the solution "slush" in the radiator, the proper course to follow is to throw a blanket over the radiator, and run the engine from two to five minutes, or until it is hot, then stop the engine for a few minutes to let the "slush" liquefy. Then one can drive without the radiator steaming as it would if the "slush" were not liquefied before starting.

Advantages Over Alcohol-water Solution.

If the motorist observes the precautions mentioned, he should be well pleased with honey-solution as an anti-freeze. The fact that the radiator can not be damaged by freezing alone, is a strong argument in its favor. The fact that the honey-solution becomes more resistant to freezing, with use, instead of becoming less resistant as in the case of alcohol-water solution, is a desirable feature.

Since the boiling point of the honey-solution is several degrees higher than the boiling point of water, the engine receives better radiation from honey-solution than from alcohol-water solution, whose boiling point is increasingly lower than that of water, depending on the percentage of alcohol present. And since the honey-solution will allow the engine to become warmer without steaming than will an alcohol-water solution, the motorist can expect to get more miles per gallon when using the honey-solution.

Because honey holds heat for a considerable length of time, it is possible to leave one's car standing quite a while on a cold day, and find the engine still warm enough to start readily on returning.

Probably the strongest argument for honey-solution, however, is its permanency. If the solution is properly made and if the motorist uses ordinary judgment in observing the precautions noted, he can put honey-solution in the radiator and forget it except for the occasional addition of a little water or alcohol to care for ordinary evaporation. One batch of solution is good for all winter, and for that matter can be saved over summer by adding a little more alcohol to prevent fermentation, to be used again the next winter.

Honey Solution Should be Sold Ready for Use.

We feel that for the best interests of both the motorist and the beekeeper, honey-solution should be sold ready for use. The average person may not give sufficient attention to details to make honey-solution properly the first time. In fact most of the cases of dissatisfaction recorded come from those who bought some cheap honey from a beekeeper and either drained the radiator half empty and poured in the honey, or in some cases squeezed honey and pollen out of the combs directly into the radiator, or, as already mentioned, in making the solution, kept it boiling over the fire for half an hour or more.

Honey-solution properly made should be placed on sale at local service stations by the beekeepers. A splendid way of advertising the solution is to place some in a test-tube or flint glass container and leave it outside the service station during winter weather with a placard to advertise it. Every one will be interested to see whether the glass will break or not. Also, to convince others of its usefulness, the beekeeper should use honey-solution in his own car. It is ex-

cellent advertising to furnish honey-solution free of charge to two or three local delivery trucks which run all day, every day, in all kinds of weather. Then, when the knockers come around slandering honey-solution, simply refer them to the various satisfied users in the community.

It is this large number of motorists who express complete satisfaction with the service received from honey-solution during the past winter that convinces me that there are wonderful possibilities in the use of honey-solution as an anti-freeze.

Some idea of the volume of business done annually in anti-freeze mixtures may be obtained from the fact that one manufacturing pharmacist distributed 128,000 gallons of denatured alcohol in and around a city of 75,000 population last winter alone. If one-tenth of the motorists of the country could be persuaded to use honey-solution this winter, a demand would be created for approximately 27,300,000 pounds of honey. Is it not possible that honey-solution for automobile radiators may prove to be the boon for the honey market that comb foundation has been to honey production?

East Lansing, Mich.

SOME PACIFIC COAST BEEKEEPERS

By Dora Stuart

How a Little Deaf Boy who Grew up Among the Bees Became a Great Beekeeper

To write about the thirty-one years of beekeeping experienced by Sylvius John Morrison, is practically to record the development of commercial apiculture in Butte County, California. For, although his early life was not spent in the northern part of the State, his knowledge of practical beekeeping, gained in established apiaries of central California, was later of great value to the infant industry of Butte County.

S. J. Morrison, or "Deafy," as he is familiarly known, was born in Los Banos, Merced County, on one of the famous Miller & Lux ranches. But in his own words, "a child moves about with its parents from place to place and remembers very little of its surroundings."

The first home of which he has distinct recollections was in Buckhorn Canyon, Ventura County, near Piru City. His vivid and happy memories of the canyon are additional proof that the male heart is reached through the stomach. At least the sweet tooth of one small boy was "reached" by the honey from Conway's apiary in Hopper Canyon, about a mile from Buckhorn.

The Morrison family was a large one, consequently each member did his bit except the little deaf boy who regularly ran away from his appointed tasks to watch the bees fly in and out of Conway's bee hives, an enthusiasm not shared by his busy parents who thought their child was "queer."

Bee Hunting in California.

But on one memorable day Deafy discovered there were runaway bees as well as boys. In a cave about half a mile from the Conway apiary the truant bees were found with about half a ton of fine sage honey laid by. After that, Deafy's father not only approved but encouraged the persistent hunting of bee trees and caves in which that mountainous country abounded.

The Conway apiary must have been conducted on modern lines, according to Deafy's memory, whose unofficial job there was to help the helper. In that capacity he learned at the age of nine years the queen-rearing process, the extracting process, and, in fact, everything connected with the commercial production of honey.

Conway's apiary being conveniently situated on a side hill, the honey was piped by gravity into a glass-covered tank which, as he recalls, was at least twenty feet long, six feet wide and four feet deep. Placed over the top was a cheesecloth to prevent the honey from darkening through heat from the sun, as this tank was used only for the purpose of ripening the product. The honey was then run into regular settling tanks and, finally, weighed into five-gallon cans for marketing.

The diversions of a child deaf from birth are necessarily limited, but even the most pleasure-surfeited boy would have vivid recollections of the layer of candied honey that remained in the bottom of the ripening tank after the honey was run into the settling tank. The layer became so hard that the helper had to break it up with a hammer like rock candy, and those occasions were holidays to the small assistant who never failed to get his share of the delicious confection.

Deafy never visited the Mendelson apiary, situated in Piru Canyon, about ten miles from the Conway apiary; but the fame of the dean of apiculture in the

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West, even in those palmy days before the foul brood wave struck California, made its lasting impression on the child's mind and helped to fix standards of beekeeping that influenced his future career.

Deafy was thirteen years of age when the family "swarmed" out of Ventura County and "settled" near Paradise, Butte County. Again their son played truant, whether on account of unsatisfactory conditions in the new locations, or the lure of the bees will never be known. However, he returned to the old "stand," or nearly so, and for two years he worked as helper in the apiary of John Frye, Kern County. There he learned all sorts of things he never forgot, and which he put to practical use when he was re-united with the family in Paradise.

He soon found a neighbor in Paradise who had kept bees for many years and whose thirty-odd colonies were still in box hives. The boy at once became the teacher of the man, who was finally persuaded first, to transfer his bees to modern hives; and, later to accept an offer of a beekeeper friend back East, who had repeatedly written, "I would like to send a lot of my pure Italian queens for those old gums of yours."

Twenty-six years ago, at the age of eighteen and with nine years of practical beekeeping to his credit, Deafy was attracted to Chico where he has lived with his mother ever since. Simultaneously with his arrival two swarms of bees settled on a bush in his yard. It was considered a good omen and Deafy decided to become a beekeeper on his own account, even though his mother declared "it would never pay." And his mother was right as success is reckoned in the present age of frenzied finance. But the little home in Chapmantown, a subdivision of Chico, and 120 colonies of bees are monuments not only to Deafy's loyalty to a boyhood love, but to his patience and skill in bringing his charges during a quarter of a century through all the vicissitudes known to beedom.

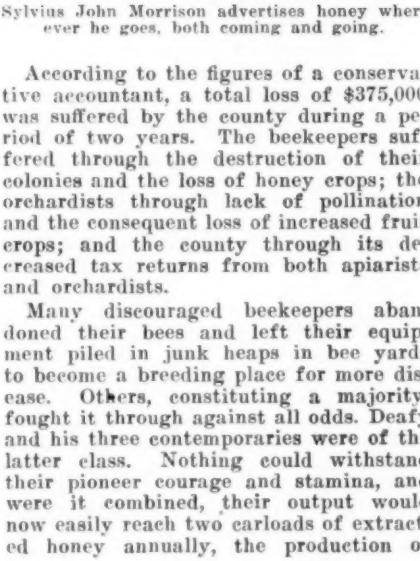
Advent of Star Thistle Makes New Beekeeping Region.

In the pioneer days of 1898, there were only three beekeepers in Chico besides himself, all operating small apiaries that produced only for the local market, and all running for comb honey, except Deafy, who at once began producing honey in the extracted form. But with the advent of the star thistle pest, beekeeping in Butte County made a most spectacular rise. The weed first made its appearance in 1912 and through the agencies of wind and flood the seeds were scattered broadcast over northern California, the fine quality of honey produced from it attracting migratory beekeepers from all parts of the State and honey production began to develop in earnest.

Ravages of the Brood Diseases.

With the influx of bees and used equipment, and the rapid expansion of apiaries already being operated in Butte; and with the further handicaps of little or no inspection, together with the inexperience of beekeepers themselves in handling the brood diseases, an epidemic of foul brood was inevitable.

First came the outbreak of European foul brood in 1915, followed two years later by American. Deafy's yard shared in the general devastation of that period. Not only foul brood had visited it, but also a grass fire that destroyed several colonies, together with his honey-house, and a broken leg that incapacitated Deafy himself for over a year, played their part in the general devastation.



Sylvius John Morrison advertises honey wherever he goes, both coming and going.

According to the figures of a conservative accountant, a total loss of $375,000 was suffered by the county during a period of two years. The beekeepers suffered through the destruction of their colonies and the loss of honey crops; the orchardists through lack of pollination and the consequent loss of increased fruit crops; and the county through its decreased tax returns from both apiarists and orchardists.

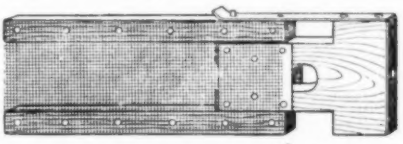
Many discouraged beekeepers abandoned their bees and left their equipment piled in junk heaps in bee yards to become a breeding place for more disease. Others, constituting a majority, fought it through against all odds. Deafy and his three contemporaries were of the latter class. Nothing could withstand their pioneer courage and stamina, and were it combined, their output would now easily reach two carloads of extracted honey annually, the production of

comb honey being almost entirely abandoned in Butte.

In fighting for the life of his bees, Deafy made discoveries invaluable to himself and his fellow-craftsmen, the most notable being that of treating American foul brood without shaking.

"The bacteria," he explains, "is like smut in wheat and must be treated in its early stages to be effective. Treatment should begin when only a few cells show infection, and consists of a solution of formaldehyde directly injected into the diseased cells. The solution must be of uniform strength and is prepared by using two ounces of formaldehyde to one quart of clear water. To inject the fluid into the cells, use an oil-can filler or an atomizer until each cell is filled to a level with the liquid. Wherever there is a punctured cell it must be torn open and filled with liquid.

[Some have tried cutting out the diseased cells when only a few are found, but, as a rule, this has not been successful. Evidently contaminated honey is usually widely scattered in the hive before the disease makes its appearance, making treatments of this kind very uncertain.—Editor.]



An introducing cage in which the stopper containing the candy plug can be pushed in to exclude the bees from the candy when first put into the hive.

The foul brood disaster might be regarded as a blessing in disguise when the increased knowledge of beekeeping and the initiative it developed among beekeepers are considered. During the lean years caused by bee diseases Deafy was obliged, as were many other beekeepers, to supplement his earnings from apiculture. He realized larger returns on his honey crop by retailing it himself.

A Frame-wiring Device.

Through the wiring of thousands of frames he was enabled to work out an improved wiring machine by the use of which he can wire 120 frames an hour by actual contest against the old method whereby the output averaged about thirty frames in the same length of time. He has become so expert that many of the larger local beekeepers prefer to have their frame work done by him at a moderate cost than to bother with it themselves, especially during the busy season, and the fact that his time, outside of his own bee work, is now almost wholly occupied by such emergency calls, is a tribute to his skill and fidelity.

Another of his devices is a self-locking queen-introducing cage, in size similar to Dr. Miller's cage, being 4½" long by ¼" thick; but in place of being open on both ends, one end closes with a block that has a catch having two holes

Wiring 120 frames per hour on a home-made wiring machine.

that lock on a pin. In introducing queens the opening of the stop is regulated.

In the bee yard he is continually evolving new methods of handling bees and improving old methods. His practice of mating four queens from one super by means of double-wire mesh partitions with a small space between, separating the bees, thus completely separating each nucleus and at the same time utilizing the warmth and strength of the entire colony, is being copied by leading beekeepers in the county. Also his experiment in the use of acorns as queen-cell cups has attracted wide attention.

But in no line has his originality been of greater benefit than in the advertising device with which his two-wheeled, self-propelling vehicle is equipped. He gets 'em going and coming. On one side of a triangular sign suspended on the cross-bar between the wheels of his bicycle, the public is exhorted to "Eat Honey!" On his return trip the same public is informed as to where honey may be procured by the announcement on the reverse side of the sign, "I sell it!"

Anything that stimulates the public to an increased consumption of honey is doubly welcome in a county whose resident colonies now number over ten thousand, and whose output, conservatively estimated, is over fifteen carloads of honey annually.

Chico, Calif.

XUM

SODIUM HYPOCHLORITE TREATMENT

By Prof. H. F. Wilson
University of Wisconsin

The Germicidal Action of this Disinfectant on the Spores of American Foul Brood

It is a well established fact that sodium hypochlorite is a very effective agent in the control of certain non-spore-forming bacteria and work done at this laboratory shows quite definitely that it may be also used to destroy certain spore-forming bacteria in both the vegetative and spore stage.

The present discussion is limited entirely to the effect of the sodium hypochlorite on spores of American foul brood. It was not the intention to present this data until a later date, but in view of the article published by Professor Jones in the June issue of Gleanings in Bee Culture, it is believed advisable to publish this information at this time.

While I have conducted considerable field work with sodium hypochlorites in the form of Bacili-Kil and Be-Helth, I have not personally carried on any experimental work in the laboratory. At my request Mr. W. A. Hadfield of the General Laboratories made an extensive series of bacteriological tests, the most important of which I have secured permission to report in support of my statement that free spores of American foul brood are destroyed when placed in contact with solutions of sodium hypochlorite.

The experiments reported here were tried on free spores and scales taken directly from infected combs and were divided into three groups:

First, the germicidal action of Be-Helth on an aqueous suspension of the spores of B. larvae; second, the germicidal action of Be-Helth on the spores of B. larvae in dried larval scales; and third, the germicidal action of Be-Helth on the spores of B. larvae in the honey-water syrup.

Supplementing this series of experiments is another series in which the above were duplicated in the field, using clean, non-infected colonies to determine if the spores were killed.

Germicidal Action of Be-Helth on an Aqueous Suspension of Spores of B. Larvae.

An experiment was made to determine if the amount of Be-Helth in concentrate or dilution, carried over by the standard loop in making inoculation in egg-yolk suspension bouillon, inhibited the development of the vegetative form of B. larvae. In this experiment, duplicate tubes of the egg-yolk-suspension bouillon were inoculated, first with an aqueous suspension of the spores of B. larvae, and this followed by a loopful of the Be-Helth in concentrate or dilution to be tested. Cultures were incubated for 14 days at 37.50° C. and then examined microscopically. All tubes inoculated with B-H or dilutions, as well as the control, showed vegetative development of B. larvae, showing that the amount of the B-H carried over into the egg-yolk suspension bouillon did not inhibit the development of the vegetative form of B. larvae.

The aqueous suspension of the spores of B. larvae was prepared by macerating one scale in ten cc. of sterile water, filtering and heating to 100° C. for two minutes to kill any other organisms that might be present. One-tenth cc. of this suspension was added to five cc. of the disinfectant to be tested, and at known intervals of time, subcultures made in egg-yolk-suspension bouillon. The cultures were incubated at 37.5° C. for 14 days. One standard loopful of culture was then stained with aniline oil gentian violet and examined microscopically.

Three separate and distinct tests were made using dried scales taken from old combs which had become infected the previous season with American foul brood. Concentrated Be-Helth and the following dilutions were tested: 1:1, 1:2, 1:5, 1:10, and a control test using 5 cc. water. The time of testing was 5, 10, 20 and 30 minutes and 1, 2, 4, 6, 24 and 48 hours. Results show, first, that Be-Helth concentrate and dilutions 1:1 and 1:2 killed the spores of B. larvae in 5 minutes and, second, that dilutions 1:5 and 1:10 killed the spores in 20 minutes. The control gave positive growth of vegetative forms in all periods of exposure.

These tests were verified by field tests that were made as follows: A suspension of spores of American foul brood was made by grinding the material from 100 cells in water, straining and diluting to one-half a gallon. This solution was sprayed on 2 hive bodies and 20 frames of foundation and allowed to dry for 24 hours. On the following day, one hive body including top and bottom and 10 frames of foundation, were sprayed thoroughly with concentrated Be-Helth and the other set, including hive body and 10 frames of foundation, used as the control. The set sprayed with Be-Helth was allowed to dry for 24 hours. The following day nuclei were prepared and put in these hive bodies containing the frames of foundation. The colony on the hive parts and frames of foundation sprayed with Be-Helth did not develop

the disease, while the control colony did develop the disease. This shows that frames and hive parts infected with spores of B. larvae and sprayed with Be-Helth were sterilized, while the colony put on the non-sprayed combs developed the disease.

Germicidal Action of Be-Helth on Spores of B. larvae in Dried Larvae Scales.

Scales used in this series of experiments were obtained from combs which had become infected with American foul brood the previous season.

The method employed in these tests was as follows: To each scale in centrifuge tube was added five cc. of Be-Helth. The time of treatment was 24 and 48 hours and a water control over a period of 48 hours. Duplicate tests were made of each of the above. At the end of the test period, the tubes were centrifuged and the supernatent liquid poured off, being careful not to throw away any undissolved portion of the scales. Five cc. of sterile tenth-normal sodium thiosulphate was added to the remaining material and the solution centrifuged for five minutes. This was done in order to neutralize any remaining hypochlorite. Inoculations were then made into duplicate tubes of egg-yolk-suspension bouillon. The tubes were incubated for 14 days at 37.50° C. Slides were prepared from one standard loop, stained with aniline oil, gentian violet and examined microscopically. Ten separate tests were made with the results that the spores of B. larvae in the scales were killed in 24 hours. The reaction of this hypochlorite on the scale is very rapid, dissolving the scale in from 4 to 6 hours.

These tests were verified by field tests. Scales of six dead larvae were immersed in twenty-five cc. of Be-Helth for a period of 24 hours and then this material added to two quarts of sugar syrup in a feeder, thoroughly stirred and placed in a colony free from American foul brood. Careful inspection of this colony was made from time to time during the season. No evidence of American foul brood developed. This experiment was repeated with the same result. These two experiments show that Be-Helth killed the spores of B. larvae in larvae scales in 24 hours. The control test, using water instead of the Be-Helth solution, produced the disease.

Germicidal Action of Be-Helth on Spores of B. larvae in Honey-water Syrup.

Honey-water syrup was prepared by mixing equal volumes of honey and water. This was heated to 100° C. for two minutes in order to kill any vegetative life present. The spores of B. larvae were obtained by macerating a scale in 10 cc. of sterile water, filtering and heating to 100° C. for two minutes. To definite amounts of honey-water syrup in sterile test tubes was added one-tenth cc. of the suspension of spores of B. larvae and to these solutions definite volumes of Be-Helth were added and thoroughly mixed. At designated intervals of time, a loopful was transferred to a tube of egg-yolk-suspension bouillon and tubes incubated for 14 days at 37.5° C. Slides were prepared from cultures, stained and examined to determine if the vegetative form of B. larvae was present. Duplicate tests were made with the same results. Dilutions of 1 part of B-H in 1 part of honey-water syrup and a dilution of 1 part of B-H in 2 parts of the syrup, killed the spores of B. larvae in five minutes. A dilution of 1 part of B-H in 4 parts of the syrup killed the spores of B. larvae in 24 hours. Dilutions of 1 part of B-H to 8 parts of the syrup and 1 part of B-H to 16 parts of the syrup, killed the spores of B. larvae in 48 and 120 hours respectively.

In the field tests a series of two types of experiments were made, one in which the dilution used was 8 oz. of B-H to 1 gallon of contaminated honey-water syrup (1:16) and the other 16 oz. of B-H to 1 gallon of contaminated honey-water syrup (1:8). With the former a total of ten feeding experiments and with the latter dilution a total of four feeding experiments were made.

In each feeding experiment the time of treatment of the honey-water syrup with the B-H before giving to the bees, was 48 hours. In some cases, in the experiments with the dilution 1:16, the colonies developed the disease, showing that the spores were not all killed. This coincides with the laboratory data in which the spores were not killed in 48 hours by this dilution. In the feeding experiments made with 1:8, in all four tests, the colonies after taking the dilution did not develop the disease.

Conclusions.

Be-Helth kills the free spores of B. larvae in five minutes. Hive bodies and frames of foundation infected with spores of B. larvae, dried and sprayed with Be-Helth, did not transmit the disease to a healthy colony.

Be-Helth kills the spores of B. larvae in the dried scale in 48 hours, when the scale is immersed in the solution. Healthy colonies fed the solution, resulting from the action of Be-Helth on scales, in sugar syrup, did not develop the disease.

One part of Be-Helth in eight parts of contaminated honey-water syrup, killed the spores of B. larvae in 48 hours. Healthy colonies fed this solution did not develop the disease. [See editorials in this issue.] Madison, Wis.

LEARNING AND UNLEARNING

By Leslie Burr

Some of the Causes Underlying Success or Failure in Beekeeping

As a final article of this series I will discuss the subject of "Success and Failure" that is, the reason why one beekeeper will make a success of a certain thing with his bees while another will report a failure. In doing this, it is my idea not to touch upon those things that are applicable to conditions peculiar to certain locations only, and the success of which, therefore, depends upon locality. I have in mind, primarily, matters and things of general application.

Difficulties in Following Printed Instructions.

Quite often the man who describes a certain procedure is at fault, in that he has taken too much for granted. He has assumed at the start that his readers know certain things, and therefore, quite often neglects to describe essential details. That is, details that are essential for some of his readers at least. As a result those particular readers never do get the right idea, and so fail when trying the plan described.

But even when a thing has been well described, it is not everyone who will be able to follow correctly the argument of the article. For there are some of us who have considerable difficulty in following any printed directions, descriptions or illustrations. I think most beekeepers have seen examples of this in the simple matter of nailing together factory-made hives. When the novice gets his first hives, covers and bottom-boards are often nailed together in strange and weird fashions. I have seen the tin rabbets, used to support the ends of the frames, nailed in about every possible position. I have even seen them nailed on the bottoms of the hive bodies.

As to division-boards, or followers, the average novice at the start does not seem to get the correct idea of their use. In one case an educated man, a college graduate, who decided to harvest some of the easy money to be made by keeping bees (for did not bees work for nothing and board themselves) purchased ten nuclei in eight-frame hives, for a start. But the anticipated "easy money" was not made, and a real beekeeper purchased the hives from him the next spring. All the bees were dead, and it was found that each brood-nest was divided by the division-board, so that there were four frames in each side. He thought that was what division-boards were for.

Another difficulty that many of us have to contend with, is that the natural way in which we do things is not always the best way. For example, take the simple matter of knotting the ends of two cords or pieces of rope together. Almost without exception the person who has not been taught differently, will make, not a true square knot, which is safe, but a granny knot, the kind that either jams or slips, and which when human life depends upon it, generally does the latter, and so makes a job for the undertaker.

In bee culture there are a number of things that are like the square knot, in that few of us do the thing right at the start, and sometimes we never do get it right.

Then there is the class of people who are habitually careless. They nearly always fail where a thing has to be done exactly right, and particularly is this true in matters like the treatment of foul brood, the rearing of queens, brood spreading, artificial swarming, etc.

Now all the foregoing causes of failure, assuming that the procedure attempted is sound, in the final analysis, generally means that some basic principle of bee culture has been violated or ignored. With the novice this is, as a rule, through ignorance. Quite often he has failed to distinguish between mere rules and principles.

Difference Between Principles and Rules.

Rules can be changed, altered, or ignored, and a measure of success result, but principles are fixed, and must always be observed, or rather not violated, if success is to result. Perhaps some may ask, "What is the difference between a rule and a principle? Where does one end and the other begin?" The answer is, that a "rule" is a mere arbitrary method of doing a thing, while a "principle" is a basic truth. For example, a colony of bees without a queen or brood from which a queen can be reared, will not exist beyond the life of the bees living. This is a basic fact, or principle. Likewise, it is a fact that larva must be below a certain age, and from a fertilized egg, if a queen is to be reared; that field bees can not rear a good queen; that combs will soften and fall down if the temperature of the hive becomes too high; that brood if not fed and kept warm, will die; that a colony in order to produce the best results must have a large force of field bees during the honey flow; that a large amount of drone comb in the brood-nest, and a lot of hungry drones, cut down the efficiency of a colony; that bees must

have room in which to store honey; that as the sun recedes and the days grow shorter and the weather colder, the bees will restrict brood-rearing and store honey in the brood-combs, etc.

As to rules, they change for every locality and with every beekeeper. For instance, the Rocky Mountain Bee Company at Berthou, Colorado, prior to the honey flow, worked their bees on a weekly schedule, every seven days, while Glen E. Moe of Candelaria, Cuba, was at the same time working his bees on a ten-day schedule. Now there is no particular penalty resulting from the bees being worked on a seven, eight, nine or ten day schedule; but there is, if the time is extended over ten days, because then a principle is involved. We have the basic fact that bees can build queen-cells from larva which will emerge between the tenth and twelfth day, therefore, in order to be sure of not losing queen-cells, the working schedule must not be extended beyond the tenth day. Again in the matter of artificial swarming, one man makes it a rule to use the brood to build up weak colonies, another will let the brood emerge and then give the bees back to the swarm, while still another may use the brood to make increase or nuclei. In this, follow whatever rule you like, but if you violate the principle that brood has to be fed and kept warm, the brood will be lost, and a failure to that extent will result.

In fact my experience and observations with green bee-men—and I have had considerable—is that failure in performing a certain manipulation with a colony of bees, more often than otherwise, results from the ignoring or violation of some fundamental principle or basic fact. Sometimes it is through carelessness, and at other times through ignorance. Particularly is this true in the treating of foul brood.

Personally I think I have seen about every basic principle of bee culture violated by some one at some time. In fact, we all slip up once in a while, at least I do. But what I object to is placing the blame of failure in the wrong place. So many of us hate to admit it when we know that we were wrong. For example, I have seen nuclei made by the Summerford method lost because the entrance was not properly plugged up, thus allowing the bees to escape; others have been lost by placing the hive in the sun on a hot day, the bees being killed by the heat and lack of ventilation, and then the method was condemned.

Likewise, in artificial swarming I have seen brood that was lost because not enough bees were left with the brood to take care of it under the conditions that existed, and then heard the failure blamed upon the method. As to brood spreading, I have heard it condemned to the high heavens, when what the bees really needed was protection to keep them warm instead of the brood being spread. There is nothing concerning bees that can not be done in a wrong way, at a wrong time, or under wrong conditions.

Basic Principles in Beekeeping the Same for All Localities.

As a final word, I want to say that if a beekeeper is thoroughly grounded in the basic principles of bee culture and observes them, he will not go far wrong in whatever procedure he may attempt to follow, and this applies to all locations and conditions, for basic principles never change. In fact, they are laws of nature, like the law of gravitation. As the law of gravitation causes water to run down hill in the mountains the same as in the prairies—even though the man from a level country may think otherwise when he goes to the mountains—so it is with the basic principles of bee culture. In many places in the mountains water appears to run up hill, but this is only an illusion, and it is the same thing when a beekeeper thinks his bees are acting contrary to basic principles. He is the one that is wrong. Nature's laws, as were those of the Medes and the Persians, are immutable.

When a beekeeper is intending to try some new procedure, that is, a procedure new to him or to his locality, he should first check up on the conditions he has, to see if the contemplated procedure will violate any basic principle. If it does not, and yet he fails, he should again check up to see where he went wrong. Here I will add a word of advice to beginners. Practical bee culture has largely been developed and the literature written by men living east of the Mississippi and north of the Ohio rivers. Their experience was, or has been, confined to that little piece of territory. And as the climatic and floral conditions that exist in Illinois, Ohio, New York and the other northeastern states, are not duplicated anywhere else in this country, the novice in bee culture who lives south of the Ohio or west of the Mississippi, always wants to keep this fact in mind when he is reading the writings of the old masters. For though the basic principles of bee culture never change, climate and floral conditions do, and the procedure must be changed to meet such changing conditions.

Willits, Calif.

XUM

FROM THE FIELD OF EXPERIENCE

A NEW WINTER CASE

Getting Rid of Loose Packing Material when Packing and Unpacking Bees

The three winter needs are—young queens, superabundant stores and excessive protection. —Dr. Phillips.

The Editor believes that a more fruitful field for reducing the cost of honey production for most northern localities is in a better understanding of the conditions necessary for good wintering.—Gleanings, February, 1924.

With those two statements we must agree. The greater winter loss can only be lessened by improved methods of packing. We know that young queens in the fall will give us an abundance of young bees, and with an abundance of stores, properly placed, we have two of the essential requirements.

Unfortunately little improvement in insulation has been made this last decade. The Bartlett winter case still leads. But that is a problem in itself. The cost of the case is high, the loose

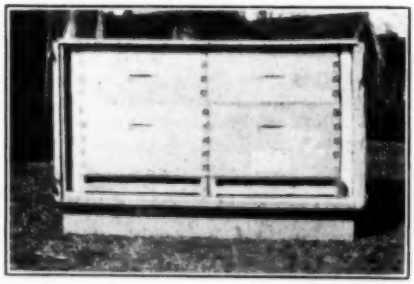


Fig. 1.—Front view with front panel removed, showing the pads at top, ends and bottom, used instead of loose packing material.

packing is a nuisance and the time consumed in packing and handling mounts up. We have tried everything, and our experience has taught us to look for three essentials—perfect insulation, absence of loose packing and speed in assembling. We have consulted bee men all over the country, and they all agree on those essentials.

After long experimenting we have devised the case described here. It is a long way from perfection, but in the main, it meets the three requirements, and we are confident that with the help and suggestions of interested folks it can be vastly improved upon.

The all-year stand is made from 1 by 4 stock, the two hives butting close for winter and spread out in summer. The insulating material is called Celotex made from sugar cane refuse and about ½" thick. It can be sawed as easily as pine, and manufacturers' tests have proven that one thickness has a high insulating value. It does not absorb water and the outer shell after sizing takes paint easily. It costs about the same as matched fencing, and will last indefinitely.

Having more time than money at our disposal, we made paper plates 1¼"

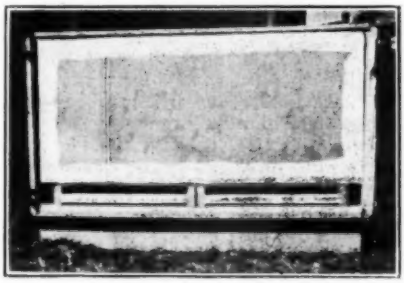


Fig. 2.—Same as Fig. 1 except that the insulating pad is in place covering the fronts of the hives.

thick to go around the hives, but have abandoned the plan, and in the future will use Celotex plates. My son, unaided, completed the job of packing two hives in ten minutes. The procedure is as follows:

Remove the hives from the stand, filling in the empty space with leaves. On top lay a sheet of Celotex, replace the hives. Lay the side and end plates in place, and then the outer shell nailed to a frame of 1 by 2 stuff is put on and locked or nailed at the corners. Another plate of Celotex is laid on top, and the whole covered with a sheet of tar

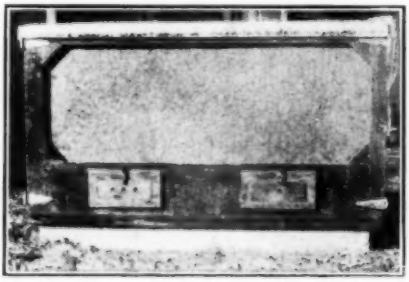


Fig. 3.—Same as Fig. 2, except that the front panel is in position.

paper, folded over and held in place with lath. No dimensions can be given, but it is an easy job to measure the hives and care in cutting means close joints.

We use a half-depth food chamber, and

our cases are 24 inches high. Being so close to the ground they are better protected.

This is not a cheap case. It will cost 25 cents per hive per year. This includes the price of the material and labor of packing and unpacking at the rate of 50 cents per hour, and with ordinary care will last twenty years.

We invite constructive criticism and no pains or expense will hinder us in our endeavor to improve our wintering.

West Allis, Wis. Jos. M. Barr.

PLEASURES OF BEE HUNTING

Some of the Finer Points in the Fascinating Art of Locating Bees in the Woods

There is no better way to spend a day of recreation than that of hunting wild bees, and especially so on a nice warm day in the autumn. To those who have never been bee hunting there are a great many pleasant surprises in store. There is a fascination about it that is equal to any of the outdoor sports, and a lady can hunt bees and enjoy the sport just as well as a man.

For speed, convenience and efficiency, I now have an equipment for hunting bees that I very much like. My bee box is different from any that I have seen described. It is about five inches wide inside by ten inches deep and about sixteen inches long. It is fitted with a tight cover and has a strap that is fastened about two inches above the center of each end, so that I can carry it suspended from my shoulder without interfering with my arms or hands while tramping through the woods. Such a box will hold every thing that is needed for a day's outing, with the exception of field glasses which are carried in a case and suspended from the other shoulder.

In this box I place a four-ounce bottle of pure honey, a pint bottle of thin sugar syrup, three cigar boxes filled with old dark comb, three tin cans for catching and handling the bees, a small vial of annis oil, although I do not find it of much help except on rare occasions, and last but not least, a light lunch.

The reason I carry two kinds of bait is that should the bees be gathering much nectar from the flowers, it is sometimes difficult to get them started to feeding on the thin syrup at first. By putting a little pure honey on the bait they will readily accept it and after they have made a trip or two they will take the thin syrup and will fill up and unload in much less time than they can on the heavy honey, which means a saving in time.

The distance to the tree cannot be estimated with any degree of accuracy by the time the bees take to make the trip as it will depend upon the conditions that they are working under, such as whether they are loading heavy or thin syrup, working in a warm or cold temperature (they slow up as the air becomes cooler) or whether there is much wind blowing.

I find that old cigar boxes that are just deep enough to hold the comb without crushing it when the lid is closed, make a very convenient box to handle the combs, after being thoroughly aired out so that no odor of tobacco remains. I carry three such boxes filled with comb but rarely use more than two at a time, reserving the third box for any emergency that may arise. My first line might be through a swamp, over a bend in the river, or through a heavy piece of timber and in such a case I take several bees that have returned to my bait and have not yet loaded up, and start a new line at some other location that would give a good angle to the first line and if for any reason I wish to abandon the new line I still have bees on my first bait to work with. The main idea of carrying extra cans and combs is to eliminate all the loss of time possible. I have no regular set method of working, but adjust myself to the conditions as I find them.

For catching and handling bees from the flowers to place upon my bait, I have found nothing more convenient than a tin can, such as a baking powder can, after the tin has been removed from the bottom and a piece of window glass inserted in its place, thus allowing the light to enter the can from either end. The cover is perforated to give the bees fresh air if they are caged up for some time. With a little practice one can catch and start a dozen bees to working while getting one started in the bee box as described by most writers on bee hunting. I carry three such cans, each of a different size, so that when not in use the smaller can can be placed inside the next larger and both put into the largest can.

To make one of these cans, take an ordinary can opener and remove the bottom, leaving a narrow shoulder. The glass, which should be a little larger than the can, can then be trimmed to size with an old pair of shears or tinners' snips, until it just fits the inside of the can, holding the glass under water while doing this. The glass is held in place in the can with a little plaster of Paris placed around the edges. The advantage of such a can is that the light can enter from either end and when you gently place it over a bee, she will immediately fly toward the light which will be the glass end of the can. It is then ready

to be placed upon the bait. With a little practice one can catch five or six bees at a time from the flowers without losing any which is often a time saver when starting a line from some clear opening which may be some distance from where the bees are found.

To start a line, place one of the cigar boxes of bait on a stump, fence post or any suitable object, then place the can with the bee on the comb and with your hat or some dark cloth, cover the top of the can, allowing no light to enter the can from that end. The bee will then go to the only source of light, which will be at the cells of the comb where the edge of the can rests upon them. While trying to get out the bee will discover the bait. As long as there is any buzzing in the can you may be sure that the bee is not accepting the bait. When all is quiet, gently remove the cloth and you can see her loading up. If all is well remove the can, but be very careful in doing so that you do not make any quick motion or jar the comb, thus frightening the bee. After the bees have made several trips and have got the robbing fever, you can do most anything you wish with them as you can't then drive them away.

Personally I do not pay much attention to the first trip that my bee makes for it makes a great many circles, each one larger than the one before and often when you think that it has gone it will return and give every thing another careful inspection before it leaves for its home. I watch each succeeding trip very closely as the more trips it makes the less it circles and the easier to follow with the eye. As a general thing the rest of the bees on the flowers will be from the same tree and you can start another bee while the first one is gone.

I very much disagree with the statement in "A B C and X Y Z of Bee Culture," that "it is a waste of time to look for the tree or to make any cross lines until you are beyond the tree." Why follow the line through a possible swamp or through a heavy piece of timber when, by making a cross line at a suitable angle, you can readily see whether the tree is in the swamp or timber or beyond in some other timber. They will work on your comb from one place just as readily as they will from another and if you have given a large enough degree to your angle, you can get an approximate idea of the location of the tree and you can do it in less time and with less labor than if you followed the line through. I attribute my success in bee hunting to my extensive use of the cross lines.

Bees, as a general thing, take the shortest or bee line for home, but I have found many exceptions to this. On one occasion I worked on a colony for two days before I found it. In going nearly two miles, these bees made two very distinct angles in their line of flight to the tree. I attributed this to the fact that there was a cold high wind blowing over a ridge of hills which they would have to cross if they continued in a direct line to the tree from where I had started them. In order to keep out of the wind they followed a ravine for about a quarter of a mile. On other occasions I have known them to follow the bend of the river rather than to fly over or through a heavy piece of timber and the weather conditions were such that there was no excuse for their doing so.

When I have the approximate location of the tree, I do not give each tree a thorough inspection, but rather just a hasty glance as but very few trees are suitable for bees. The tree must have size and defects and a general makeup that is quickly noted by the eye, such as an enlarged crotch or a bulge in the tree where years before a limb had died and decay had set in and, no doubt at some time a bird or squirrel had cleaned out some of the decayed wood and had made a home there. A knot hole is generally the entrance to a bee tree.

It has been suggested that, should the tree be a valuable one and could not be cut down, that you use lineman's climbers and climb the tree and remove the bees and honey. To those who are not experienced with climbers, my advice would be to leave them alone, even though you have to abandon the bees. The spurs on the climbers are only intended to be used on wood that has the bark removed and not the hard bark on the tree.

Alma, Mich. M. S. Joiner.

CALENDAR ADVERTISING HONEY

A Neat and Attractive Calendar that Helps One Beekeeper Sell His Honey Crop

I have tried almost every method of advertising my honey here: automobile lettering, steady newspaper advertising, house-to-house canvassing, large window displays and demonstrations as well as educational talks and writings, but I have never experienced or created such a steady and enormous demand for honey with any method of advertising as that which a little inexpensive calendar has made.

I composed a few catchy little paragraphs, and had a cut made from a small photograph of my little three-year-old daughter, then let a local printing concern do the rest. All of the grocery stores

were personally supplied with these calendars. The banks, schools, doctors, public meeting places, large business houses and hotels also were not forgotten, and, in fact, a calendar was hung in many elevators and other places where people must stand and wait.

A good many of those hung in public places, soon disappeared, for they were "just too sweet," as many young ladies expressed it, and were soon confiscated, only to reappear on a stenographer's desk or on the wall at home.

I was at first disappointed in the local grocers, for a great many of them said, "That sure is a pretty calendar. I'll take that home." I wanted it hung up in the store. After chinking it over I have come to the conclusion that if it hangs in the grocer's home where he sees it only once a day, and reminds him whether he has some or enough of my honey on the shelf at the store, it will be advertising expenses well spent.

"HONEY"
We call her "Honey". Why? Because we think she is the
Your Mother called you "Honey", your Father called you "Honey",
Winkler Honey Co.
TELEPHONE 4010
JOLIET, ILL.
"Eat thou Honey,
because it is good"

This calendar has some very strong advertising points. With its sweet, innocent baby face it suggest closer view, and invariably the looker steps close enough to read just what could be printed below such a pretty picture. That is just what is wanted. The unsuspecting customer is interested, and reads the few short paragraphs which are short, educational, interesting, and not soon forgotten, for they suggest sweet memories of years gone by. The calendar is not of the common advertising or blaring kind that one sees all about, nor is it of the art calendar type. It is just one of the ordinary, and as I have heard it often expressed, original and very fitting. Some time later this same customer will hear some one use the word "honey" as an endearing name and at once the remembrance of that calendar comes before her and she may even try to quote the wording which she saw on that calendar.

The highways for many miles from here are so plastered with advertising signs and billboards of all colors, sizes and descriptions, that if one rides very fast it looks like a bazaar or old-time county fair. That method of advertising is overdone; and very little impression is made on the public; but if these same signs were excellent or extraordinary pieces of art, an entirely different impression would be made.

These calendars cost me less than ten cents each and they have already proven to be the best honey advertising investment I have ever made.

Joliet, Ill. Edw. A. Winkler.

SIFTINGS

by J. E. Crane

Reading Mr. Byers' experience in cleansing foul brood combs is about like pouring cold water down one's back. It gives one a chill, but a shock is sometimes healthful. See page 585.

* * *

As I have been cleaning sections of propolis I have been reminded over and over of Dr. Miller's advice to young beekeepers. It ran about like this, "Young man, there is nothing that will pay you better than to breed from your best queens," and I believe he was right.

* * *

By the way, I dreamed of visiting the doctor last night in his own home, a pleasure that was denied me during his life time. My! but didn't it seem good to see his kindly face and listen to his words of wisdom.

* * *

It is refreshing to read that article by C. D. Adams commencing on page 580 on the "Wisconsin Honey Grading Law." It shows how the business of producing and selling honey is slowly but surely being stabilized. Other states will be likely to follow Wisconsin with similar laws which will presently greatly increase the demand for honey. Mr. Adams' definition of good honey is true to life: "Good honey is the flavor of the honey you ate while a child."

* * *

That is a most interesting statement by the editor on page 566 that there has been found only sixteen cases of misbranding or adulteration of honey by the government inspectors in the past eighteen years. How can this fact be brought to the attention of the American people? Perhaps no better way than that suggested by the editor for beekeepers to invite editors of local papers to visit their yards and explain to them some of the mysteries of beekeeping, giving them interesting facts about the bees, the value of honey as a food, as well as its purity.

* * *

Not only would all the local papers be able to contradict the foolish notion about the adulteration of honey but advertise honey as it has never been advertised before. A capital idea! It might be well to give the local editor when he calls, a couple sections in clean nicely printed cartons to take home to his wife and children. It will help him to remember what you have told him.

"The Stagnation of Colony Activity," discussed on page 567, is an important question and worthy of more careful study. I wonder if any one has by careful experiments found out just how long it takes bees to produce wax after they have taken honey for this purpose. I had supposed it required from 36 to 48 hours, but am not at all sure I am right. Who can tell? The editor's statement that in a heavy flow of nectar a good colony will often fill two supers as quickly as one, is quite correct and well worth remembering.

* * *

I had almost forgotten there is such a difference in different colonies of bees. There are some colonies in nearly all our yards that have given fair yields of honey, while others have given less and some have been content to draw out their combs a little and then coat the inside of the sections with propolis. Others have neglected the clover for other flowers or for honeydew. Why this difference? A friend called on me a few days ago and he said some of the hives with half the bees that other hives had would give him twice the honey. Why this difference that stands out so clearly in a poor season that we overlook or neglect in a good year?

* * *

The facts seem to be that there is just as much difference in different colonies as in different individuals of the genus homo. We shall find, if we look over any given district or neighborhood, some persons who are thrifty and enterprising and prosperous, while others just about make a living, while there are others that must be helped or they will starve.

* * *

We have had a poor season here in the East, that is certain. If we get enough honey to pay for our help and buy sugar to winter our bees we shall do well. As for ourselves, we shall have to live by faith until another year.

* * *

There are advantages, however, and compensations even in adversity. I have read of some old saints that were beaten and thrown into prison that rejoiced that they were counted worthy to suffer. Human nature often produces its choicest fruit under somewhat hard conditions rather than in the lap of luxury, and the thoughtful beekeeper can learn some useful lessons in a poor year that he might neglect or overlook in a good one.

FROM NORTH, EAST, WEST AND SOUTH

In Southern California.—The past two or three years have shown a decided tendency downward in the price of beehive materials, cans, cases, etc. The number of colonies in most of the commercial apiaries of southern California is not as great as it was. There also seems to be a desire with many beekeepers to sell out. Especially is this true with men who entered the business during or since the high prices of war times. The past two seasons have been enough to try one's staying qualities; but is there any pursuit without its drawbacks? And can't the apiarist come back just a little quicker than almost any other business man?

I was told a few days ago that the seven years just past were the shortest of rainfall of any seven-year period of the past fifty years, according to records kept during that time. If there is any consolation in the old, old story of the seven lean and the seven fat kine, well, let us take hope. But even with the unfavorable years, taken as a whole, the past seven years have not been at all discouraging. With as good or better seasons, the industry will pay as well or even better than the average business of the same investment and labor.

We hear a great deal and see accusations in the papers of price cutting and underselling. I would say that if a beekeeper is going to sell in small containers, he should have pride enough to market only in clean, attractive packages with a proper label and then should charge a good living price. There seems to be a great tendency with the buying public to select an article that strikes the fancy and looks attractive, the price being secondary. Honey is no exception and a few ounces more or less makes little difference to the consumer provided the quality is there.

Honey buyers are still calling every few days and most of the producers have sold. From twelve to thirteen cents for white honey seems to be about the wholesale price.

The September meeting of the Riverside County Beekeepers' Club was held at Fairmount Park, Riverside, on the 5th. Members brought lunch and this being spread on the long tables, was enjoyed by all present.

There was considerable discussion as to the advisability of feeding corn sugar. It seems that the county sheriff has from seventy-five to one hundred sacks in his possession. It was captured in a raid on a bootlegger's establishment. It is to be sold soon and some beekeepers present thought it worth while to try feeding it to bees. Most of those present thought favorable of the proposition, although no one had had any experience as to its merits as bee-feed.

Corona, Calif. L. L. Andrews.

* * *

In Northern California.—We hear from Petaluma that the city council of that city contemplates prohibiting the keeping of bees within the city limits. Every now and then some city council becomes advised that bees should be legislated out of cities. Often such legislation is passed, more often it is not and furthermore, when passed, it does not as a rule remain in force for any great length of time.

The pear blight controversy is under discussion again. "Do Bees Carry Pear Blight?" is what a California farm journal asks. Wisely and in the absence of any proof, the paper leaves the question unanswered. There was a recent outbreak of pear blight in a certain coast district and because a shipment of several hundred colonies of bees had been brought in for pollination purposes, the blame for the spread was placed by some authorities on the honey-gatherers. However, at the same time there prevailed a sudden spell of hot weather which aggravated the situation considerably according to other observers.

On account of the death of a small boy, the State Board of Health may recommend two new laws to prevent future fatalities amongst eaters of fruit which had been treated with poisonous sprays in insect pest control. The laws under consideration would provide, in one instance, that all fruit should be washed before sold, and, in the second, to prohibit the use of all sprays containing poisonous ingredients. In the death in question the autopsy disclosed arsenic and a heavy coating of arsenic was found on the rind of the melons, but none in the pulp, indicating a spray poison and also that the arsenic had been spread by the knife which cut the fruit.

I fairly devoured Mrs. Stuart's August contribution to Gleanings. To put it ever so mildly, I am more interested in what Ralph B. Calkins is doing than in anything else that pertains to beekeeping. When he puts his scheme across (and he is going to do it), you will feel the greatest benefit that has ever happened to

beekeepers. Whenever I am in San Francisco, I always drop in to see Mr. Calkins. His ideas are absolutely sound and being the indefatigable worker that he is, I have every reason to believe that within another year, you, Mr. Beekeeper, will be walking about as nonchalantly as any owner of a "Heinz, Beechnut, Postum or Del Monte" product.

Big Sur, Calif. M. C. Richter.

* * *

In Oregon.— Reports coming in from various portions of the State indicate that the honey crop is somewhat spotted. In general, however, there is about a normal crop in Oregon. Reports from eastern Oregon indicate the production will run about normal in that region. In the mountain districts most producers report a good crop, while in the Willamette Valley the crop seems to vary considerable with the location. Where there was considerable Hungarian vetch a good crop has been produced. In other districts there seems to be a shortage.

The market reports are rather encouraging. Larger buyers seem to be having difficulty in filling orders as there is practically no honey coming in from California. Most of the honey produced in western Oregon is sold directly to the consumer or to the retail stores. Indications are that the crop will move very readily on a strong market, but with comparatively little advance in retail price.

Bees apparently will enter winter in excellent condition this year.

Corvallis, Ore. H. A. Scullen.

* * *

In Manitoba.— Since my last letter we have experienced a most unusual season. The old-timers tell us that western Canada has never in its history had such extremes of heat and cold, rain and drought as in this summer of 1924. Crop conditions are similar to the weather conditions. A number of our beekeepers report splendid crops, some extra good, while others have no honey at all. We find conditions all the way from starvation to good crops and these extremes are found in some places not more than twenty miles apart.

The spring opened later than usual and the shipping of packages about a week later than in other years. The whole summer has been almost ideal for the shipment of packages. Very large shipments came forward from the southern states and very few complaints were received at this office. Nearly all shipments came through on sugar syrup. Some shippers changed from the candy to syrup with a much smaller loss in dead bees. On one or two days in early May we found shipments suffering from the cold. This is the first time that we were quite sure of this. When these bees, apparently dead, were taken home and placed in a warm room they came back to life again. With plenty of syrup in the tins, they had evidently become too cold to take it and were jarred into the bottom of the cages. The season, however, was a better one for the shippers than the receivers, as many packages were lost weeks after being hived.

On one side of the province early conditions were good, with abundant moisture, while on the eastern side it was very dry until the middle of July. A large increase in the acreage in sweet clover is reported, also the same holds true regarding buckwheat. Buckwheat, in most cases, has been a failure from both the farmer's and beekeeper's standpoint. Every locality where sweet clover is grown reports a good crop of honey regardless of the amount of moisture. In dry localities the natural flora apparently did not secrete nectar.

Since the spring I have covered over 4000 miles in inspection work and have concluded that the new regulation regarding the importation of bees on combs is a good one. I have traced American foul brood in at least four outbreaks, directly to shipments of nucleus colonies received from shippers in whom we have placed the fullest confidence. When I find a beekeeper with ten or more colonies of bees, all purchased from one source and hived in new hives, and no other bees within twenty miles, it is not hard to tell where the disease came from. These combs, no doubt, appeared to be free from disease when shipped, but before the season was over or in the next year, it makes its appearance.

Regarding honey prices, in spite of the fact that our crop is not more than 50 per cent of last year's and the other provinces of Canada report not more than half a crop, it seems that we will be forced to sell at last year's prices. Wholesalers claim that they placed their orders for ten carload lots in January at last year's prices so the local producer can take these prices or peddle it himself. Small beekeepers are finding a ready sale at a dollar for a five-pound pail, but wholesalers claim that 11½ cents a pound, f. o. b. Toronto, is the price we will have to face if we would sell in a wholesale way. Under these conditions the spread between the wholesale and retail prices will be from 100 to 125 per cent. L. T. Floyd.

Winnipeg, Man.

In Wyoming—From the reports of the county apiary inspector, it appears that there will be more cases of American foul brood this year than last. This is, by far, our greatest problem at present. However, this year with a better quota of county and assistant county apiary inspectors, we are waging a winning fight on the disease in most counties. Our slogan is, "Into the winter clean." We are following a program of burning all foul brood colonies found during the late summer inspection and are trying to get everything clean by the time fall robbing begins, which with us is usually from the first to the middle of September.

I think it would be doing both the beekeepers and Dr. Hutzelman a favor to let them know that we have lost a heavy percentage of bees in Wyoming, following treatment with the alcohol-formalin. B. M. Caraway of Riverton lost 250 packages out of 500 put on treated combs. John F. Franklin of Labonte lost virtually 100 per cent. The difficulty has come from treating combs during cold weather in winter, at which time the solution evaporated so slowly that the solid form of formaldehyde, known as para-formaldehyde, was left as a residue in the combs. This is exceedingly poisonous, even killing the adult bees. As a result of this experience as a "foulproof" measure, we are advising the rinsing of all treated combs in water.

Some erroneous information seems to have gotten out concerning the reclassification of comb honey shipments by freight out of the western district. Some beekeepers think that the reclassification which the Wyoming Beekeepers Association secured by sending its president, O. Hamm, to the Chicago hearing of the Consolidated Traffic Commission, applied only to l. c. l. shipments. This is not true as there is a lowering also of cased comb honey in carlots of a minimum of 30,000 pounds. This means the saving of thousands upon thousands of dollars to the comb-honey producers of the western district. Beekeepers interested in the new tariff should consult the Consolidated Freight Classification No. 3, Supplement No. 26, Western Classification No. 58, issued August 5, effective September 20, 1924. Items 19, 20, 21, and 23 on page 24 cancel items 24, 25 and 26 on page 229 of classification.

The Wyoming honey crop is going to be good. At the present writing we predict a 150-pound average for the State. We expect 9½ to 10 cents in carlots on our white and water-white sweet clover and alfalfa honey.

Tentative plans for the annual convention of the Wyoming Beekeepers Association at Thermopolis, Wyoming, Nov. 6, 7, 8 and 9 are under way.

Laramie, Wyo. C. L. Corkins.

* * *

In Texas.—July and August have been almost rainless months in all of Texas. Throughout the cotton belt the honey flow has been cut short by the dry weather. Estimates of the cotton honey producers range from 50 to 75 per cent of normal for the crop. As yet bees are in good condition. The summer resting period lasted from July 25 to August 17 in the southwestern part of the state. Without rain, change in temperature or any other perceptible cause, egg-laying started off in earnest at the end of this period. The bees busy themselves in carrying water and with gathering propolis as there is nothing in bloom, yet this is normal for this time of year in Texas. Again this summer the robber flies (Asilids) took a heavy toll of field bees and virgin queens. All honey plants with the exception of cotton are in a normal condition.

The honey market has been good. With the exception of the cotton belt and extreme northeast Texas, the crop is all sold. The local demand has grown to such an extent that many beekeepers who formerly shipped honey have sold out on the home market.

The State Beekeepers' Association met with the Farmers' Short Course at College Station, July 29 and 30, with a fine attendance. This was styled the "All Texas Meeting" as all speakers were home talent. One of the most enjoyable features of the meeting was a biscuit and honey feed, put on to allow the beekeepers to taste the "brag" honey of other beekeepers. Incidentally many of those present got their first taste of basswood and buckwheat honey from samples coming from the northeastern states. The following officers were elected: W. E. Joor, president; A. W. Bryson, vice president; A. M. Hasslbauer, secretary and treasurer; W. O. Victor, fair superintendent; T. W. Burleson, fair judge.

Dr. F. L. Thomas, formerly of Alabama, the new state entomologist, is not primarily a beekeeper, but he is enthusiastic over the work done by his division in beekeeping. He is planning on having a number of bulletins on bee work issued in the near future. A reprint of Bulletin No. 255, "Beekeeping for Beginners," is in the hands of the printer and will be available shortly.

Bees and ants have much in common. I have been much interested during the past three years in the activities of a colony of small black ants that have their home under a cement sidewalk.

XUM

Several times every year the ants move. They seemingly leave the old place and establish a new home at some little distance. About five days after the move there comes a swarm of winged ants out of the old home. After a few hours of flying and losing of wings these ants return to the sidewalk home and the colony goes on as before. Have we here in this species of ants the same procedure as we have in the honey bee colony? Is the "move" a swarm and the flying swarm simply a mating swarm such as we find sometimes accompanying a virgin queen bee on her mating flight.

This spring many of the beekeepers were worried because cotton farmers were planning on poisoning for boll weevil. To date their fears have not been justified as the only reports of poisoning that have reached me are of bees killed by paris green put on the cotton plants very early to kill the leaf worm. The bees like to collect the plant juice that exudes where the leaf worm cuts the leaves and thus get a full dose of poison. As the leaf worm occurs only at irregular intervals, sometimes years apart, this poisoning cannot be looked upon as a menace to beekeeping. H. B. Parks.

San Antonio, Texas.

* * *

In Wisconsin.— Early in the season, the beekeepers of Wisconsin reported that a very small crop would be secured, but conditions improved as the summer continued. While a few of our beekeepers have received only a small crop, and others a fair crop, a sufficient number have received an unusually large crop so that the total for Wisconsin should average up to normal years.

The one unfavorable condition to be found in Wisconsin is that only a very small percentage of comb honey is being produced and it is quite likely that there will be no comb honey left in the hands of the beekeepers by the first of January.

The state association has recommended prices as follows to its members:

Extracted honey, direct to the consumer, in lithographed pails: 5 pounds, $1.15; 10 pounds, $2.10. In plain pails: 5 pounds, $1.10; 10 pounds, $2.00. In 60-pound cans, $10.00. In glass, ½ pound, 20c; 1 pound, 35c; 3 pounds, 85c. Wholesale, 500 pounds or more No. 1 white, 13½c a pound; 1000 pounds or more No. 1 white, 12½c a pound, f. o. b. shipping point.

Comb honey, to the consumer: Fancy, per case, $7.00; per section, 35c; No. 1, per case, $6.50; per section, 32c; No. 2, per case, $5.00; per section, 25c. To storekeeper: Fancy, per case, $6.00; No. 1, per case, $5.50; No. 2, per case, $4.00. To wholesaler: Fancy, per case, $5.50; No. 1, per case, $5.00; No. 2, per case, $3.50.

A few of our beekeepers are inclined to feel that the retail prices are too high for their sections, but we find that a considerable part of the crop is being moved at the recommended prices. It is interesting to know that although some beekeepers continue to sell at prices which are entirely too low, the general trend of prices in Wisconsin has advanced and more or less standard prices for honey are becoming established. The advertising and standardization of pails and labels have helped materially in putting Wisconsin honey in the home market when previously outside honey was sold to a considerable extent.

Weather conditions in Wisconsin this year seem to have played an important part in swarming, and reports from many beekeepers indicate that the bees have been inclined to swarm much more than in other years. Swarming often occurred when the bees were not seriously crowded. This was especially true of swarms coming off with virgin queens. The bees seemed inclined to build many more queen-cells than usual, and virgins were permitted to emerge and run around in the colony without the usual elimination of queens. In one case, seventeen virgin queens were reported in one hive at the same time. The old queen had swarmed out and this was followed by several after-swarms with virgin queens. I noticed in the September issue a similar report from Iowa. H. F. Wilson.

Madison, Wis.

* * *

In Michigan.— The continued cool weather throughout the honey flow has reduced the white honey crop from two-thirds to three-quarters of normal. The crop, however, has been patchy, some beekeepers in southern Michigan reporting record yields, while some apiaries in the heavy soils district report one-half to two-thirds of a crop. The quality of the honey is unusually good. The comb honey crop will be light in most sections probably. Fall honey plants are commencing to bloom, but unless the weather gets warmer, the prospects for nectar are slight.

One Michigan beekeeper filed a claim for damages with the Michigan State Highway Department for loss resulting from blasting in proximity to his bee cellar. It was claimed that the blasting made it necessary to remove the bees from the cellar too early in the spring, which resulted in an unusually high consumption of stores. After an investiga-

tion the beekeeper was awarded damages to the extent of $200.00.

The three beekeepers' field meetings held at Palms, Medina and Traverse City, the last being the summer meeting of the Michigan Beekeepers' Association, were exceptionally well attended. Huber Root attended the Palms and Medina meetings and C. P. Dadant was present at the Traverse City meeting. The use of Hutzelman's solution was a topic of leading importance at each meeting.

W. J. Manley, Sandusky, has treated over seven thousand combs with Hutzelman's solution at a cost of about four cents per comb, not including labor. Ira Bartlett, East Jordan, has treated over four thousand combs at a cost of about three and three-quarters cents per comb, not including labor. Mr. Manley has had no return of foul brood in treated combs. Mr. Bartlett has not had an opportunity to rear brood in treated combs as yet.

W. G. Stevens, Custer, Michigan, has been treating infected combs in a water-formalin solution containing twenty per cent formaldehyde. The combs were soaked, after extracting, and sealed cells that were overlooked the first time were opened by scratching the surface with a wire brush. Up to this time healthy brood has been reared in treated combs without recurrence of disease.

Edwin Ewell, extension specialist in apiculture, will place educational exhibits at the State Fair at Detroit and at six county fairs. This is in addition to the regular displays made by the beekeepers themselves. Mr. Ewell spends his whole time all day,every day, during the fair season, meeting beekeepers and answering questions regarding bees and honey.

B. F. Kindig, state apiary inspector and president of the American Honey Producers' League, recently attended the Ohio State Fair as judge of the beekeeping exhibit.

Michigan beekeepers took action favoring the adoption of a standard label at the summer meeting at Traverse City. An effort is to be made to secure the services of an inspector of honey grades and standards such as Wisconsin now has.

Twenty-seven ex-service men, taking the one-year course in beekeeping, poultry and horticulture, own and operate approximately one hundred colonies of bees in an apiary especially provided for them on the college farm. In spite of the backward season, some of the students sold enough honey to equal the amount invested. The Veteran's Bureau furnishes each trainee with equipment to the extent of three complete hives with supers. Of the large number of trainees who have taken work in beekeeping at the college during the past three years, about twenty-five are making beekeeping their major occupation. At least seven have more than one hundred colonies in operation.

Jas. Hilbert, Traverse City, Michigan, who some twenty years ago, attracted attention by shipping a carload of four hundred colonies of bees from Traverse City to Cuba, is now perfecting a process for preparing cut-comb honey for market. Four by five sections are cut from honey produced on thin super foundation. After draining, the cut section is wrapped in wax paper and inserted in a sealed carton. Mr. Hilbert shipped a car of comb honey to the Chicago market in this form last year and will ship as much or more this year.

East Lansing, Mich. R. H. Kelty.

* * *

In Western New York.

The season of 1924, for western New York, has been very satisfactory. As near as I can learn the average yield of surplus white honey has been around 65 pounds per colony or about one-third of what it was last year. The fall flows have been extra good and will probably bring the total surplus for the season up to 100 pounds per colony, which is considerably above the 10-year average here. Bees will go into winter, we believe, in fine condition.

I am much surprised at the results Mr. Byer records of his use of the alcohol-formalin solution and cannot think of any possible explanation for the failure unless it be the quality of the alcohol. It is said that the low surface tension of the alcohol is what carries the formalin to every particle of the comb. And it may be possible that Mr. Byer, in shaking the combs so many times, took all the tension out of the alcohol. We who live near the Canadian border, often see evidences that some Canadian alcohol has considerable tension, possibly of a different kind than is required for carrying formalin.

To return to seriousness, I am very much disappointed to hear of the evident failure of the solution with Mr. Byer. In our own experience it has been entirely efficient. We treated about 3000 combs last winter with the alcohol-formalin solution. Combs that were literally rotten with American foul brood after being soaked in the solution for 48 hours, were distributed among healthy colonies and carefully watched. No disease occurred.

I would dislike to say anything that might hurt the business of any honest man selling package bees, but is it not

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possible that the trouble was with Mr. Byer's packages? We have no way of knowing positively that the food in packages is what it ought to be. Is it not true that the beekeepers who are buying the most bees are having the most trouble with American foul brood. I know beekeepers who do not buy package bees at all and who do not have any foul brood. On the other hand, I do not know of any who make a practice of buying packages indiscriminately who do not have foul brood. H. M. Myers.

Ransomville, N. Y.

* * *

In Ontario.—In the last issue of Gleanings, I stated that our crop of white honey would be much less than 50 per cent of last year's yield. At that time buckwheat was in bloom, great fields of it, and naturally I thought that the white honey flow was over in our locality. But much sweet clover was also in bloom and as the weather was cool, the buckwheat did not yield for two weeks and nectar came in nicely from sweet clover. As a result, our crop of white honey here in the home section is 70 per cent of last year's crop instead of less than 50 per cent. At the Binbrook apiaries during the last ten days of August, we had a nice honey flow from the second crop of alfalfa, and now our crop at that place runs over 50 per cent of last year's. Evidently I should have waited till snow was flying before making an estimate of the crop. However this is an abnormal season in many respects. In nine years out of ten, the yield of white honey here in York County is over by August 1. At present (September 9) we are having cool, wet weather and we are anxiously waiting for the sun to shine so that we can take off the buckwheat honey crop which, with us, is about an average. Much of it, however, is from sweet clover and alfalfa, but mixed enough so that all will grade as buckwheat.

Retail prices for honey are higher than last year, locally at least, and the demand is fair with no complaints as to the price. Reports of a short crop evidently have prepared the consumer to expect a slight rise in prices.

While the bulk of our white honey is No. 1 in quality, I am inclined to think that a lot of poor grade stuff has been extracted in many cases for white honey. Some honey, very light in body, has been extracted so light that it will ferment. Others have placed poor flavored and dark grades on the market, and ultimately this can result only in dissatisfaction to the producer, dealer and consumer. I know it is a difficult matter sometimes to know just what to do when one unfortunately has honey on hand that is off grade. But experience has taught us that honey of that nature should be sold only by having samples first submitted. If there is a market for honey of that grade for manufacturing purposes, by all means sell it to manufacturers, for as a rule it is not good advertising to sell poor honey for family consumption even if the consumer has first tasted a sample. Some things do not seem so bad at first but with continued use the consumer soon tires of an inferior article and is not likely to use even good honey in the near future.

Beekeepers are notoriously optimistic and considering the uncertainty of the business, perhaps it is just as well that they are so constituted. Looking to next year, one thing certainly gives the beekepers of Ontario abundant reason to hope for a crop in 1925. Wherever a clover seed was dropped last spring and in hundreds of places where it did its own seeding, mats of rank clover now greet the eye. This refers to sweet clover, alsike and alfalfa. I have never seen such universally good "catches" as are in evidence this year. Our good friends, Adams and Myers, of New York, visited us a few days ago, with their families, and they report the same conditions there, so evidently much of the clover belt both in the United States and Canada is alike in that respect.

Just a word in regard to the alcohol-formalin solution. Some evidently think that I am doubting what some have reported as to the efficacy of this treatment. Not by any means have I entertained any such thoughts and I am only anxious to find the cause of our trouble. We tried out a few more bad combs in healthy colonies and American foul brood developed in every case. There were not so many cells but enough, or rather shall I say, too much. Prof. Jones of Guelph has failed to get cultures to develop from the comb sent to him, so evidently laboratory tests are not absolutely infallible. Personally I think the formalin must have been at fault, although I learn from the vendor of the solution that the formalin was bought from the Standard Chemical Company, a concern that has the highest reputation, and they guaranteed its purity and fullness of strength. But as already stated, I want to find out for my own satisfaction where the trouble is, and incidentally others may be benefited at the same time. J. L. Byer.

Markham, Ont.

HEADS OF GRAIN FROM DIFFERENT FIELDS

Honey in Bread Making. In your July issue, page 449, you're asking for opinions on results in using honey for bread making. As you see by my stationery, bread baking is my line of business. For eight months or so I have been using honey altogether in bread with gratifying results. I only wish I had known it years before. The bread has a better flavor, better texture, better keeping qualities and also makes a nicer toast. I suggest that the honey producers get busy and go after a fine market for their products right under their very noses. A wide use of honey in the bakeries all over the United States would create a tremendous demand for honey. There are a few bakeries here and there that make a good success featuring honey bread. It will take a little education among bakers and the public. If the honey producers have not much money to spend they should spend it carefully to advertise in the bakers' magazines and canvass bakeries in every large city to teach the baker how to use more honey for the mutual benefit of producer and consumer. Geo. Muth.

Crow Agency, Montana.

Vanilla, Orange Blossoms and Bees. And still new uses of honey develop. Realizing the fact that syrup or glycerin is used as a "filler" or "binder" in the preparation of flavoring extracts, I conceived the idea of substituting honey for this purpose. I reasoned that, whether or not the honey could add anything to the flavor or merit of the preparation, it would at least afford an excellent talking point and link up another line with honey.

The matter was taken up with the chemist of the largest extract company in the state, with the result that, in collaboration, we have worked out a formula for a vanilla flavor in which an aromatic honey, preferably orange, is used. Here is where, to borrow the language of our revered friend, A. I. Root, a "happy surprise" came in. Not only is the idea valuable in an advertising way, but we have found that the honey blends with the aromatics of the extract in such a way as to develop a delightful "bouquet." Moreover, it is the opinion of our chemist, and this has been practically demonstrated, that the honey tends to retain in the baking the ordinarily very elusive vanilla flavor.

It should be said, however, that the use of honey in the manufacture of extracts involves some chemical difficulties, and the problem is one for the professional scientist rather than the amateur. I am inclined to believe that the idea is of at least some value to honey producers or dealers, in that it affords another angle from which to suggest the use of honey in a culinary way; and I am quite sure that—and here I am giving away a trade secret—if the housewife would stir up with her flavoring extract a spoonful of mildly aromatic honey when she adds it to her baking she would find the result most satisfactory, assuming, of course, that the extract used is of full strength and best quality. E. W. Peirce.

Zanesville, Ohio.

Honey by Parcel Post. To ship honey by parcel post after it has candied, take off the cover, punch a small hole in the first bend of the lid, bend it upward a little, thus making a place to tie on the shipping tag. Place it back on pail, solder in four places to keep it from coming off, cut a strip of strong paper 3" wide and long enough to go around the pail connecting both ends with the label and stamp the strip with the honey grading stamp. Then draw a strong string through the hole in lid and tie on a shipping card with the address. Such a package is sure to go through the mails O. K. No other packing is necessary. C. H. J. Baumbach.

Fall Creek, Wis.

Local Editor Writes Up Honey. Early in August I called upon the editor of our local paper and informed him that in a couple of weeks or thereabouts we were intending to take off our summer crop of honey and extract it. I invited him to come and see us on that occasion, and thus allow us to show him the operation, and explain a few of the details connected with the bees and their work. He expressed himself as pleased to accept this invitation. Later we notified him of the precise date. He came and we showed him all we could concerning the bees and the honey, and told him some of the interesting facts well known to beekeepers, but so little known or so inaccurately understood by people in general. He seemed to enjoy his visit, and took a deep interest in what we told him as we worked. On his departure we bestowed upon him a fair sample of our product, so that he would fully realize that honey is good to

eat. In his next issue he gave us a column or two on the subject of his visit. In it he seemed to have the ideas about as we told them. He missed the gender of the workers once, but otherwise he was pretty accurate. I believe his article will be of value among his readers and will help to boost the local honey market in some appreciable degree. Tonight when I received my September Gleanings I read with much pleasure and surprise your editorial recommending this identical means of bringing the general subject of honey before the public and interesting them in it with the view to its more extended use.

Westboro, Mass. Wm. F. Flynn.

Food Chamber Condemned. I used the food chamber idea last winter for the first time; but never again. My opinion of the idea would not look well in print. The food chamber and brood-chamber were full of honey the middle of October, but the bees and queen formed their winter cluster in the food chamber. The weather was 16 below zero. The bees used the honey in the food chamber where they were clustered and starved with about 35 or 40 pounds of honey below in the brood-chamber. Charles Cook.

Veedersburg, Ind.

[This is indeed surprising if the food chamber was entirely full of honey in the fall, for the bees, as a rule, form their winter cluster below the honey and move upward as honey is consumed. In using the food chamber it is extremely important to have it well filled with sealed honey so that the cluster will be below.—Editor.]

Queens by Aeroplane. I have always felt that the aeroplane should be ideal for shipping queens. They would get no rough handling and the machines fly at such an altitude that the atmosphere is cool. In addition to this the queens would be on the road a very short time. With this in mind we were much pleased when our postmaster announced that mail would be received to go by aeroplane on July first, to be carried by train to Chicago and then by air to San Francisco. I immediately tried one queen by the air route, but I presume the postal clerks were not in the habit of handling air mail and threw it into the bag so it did not go by aeroplane, even though it had the aeroplane stamp. I then tried another, using the aeroplane stamp and on the first line of the address at the top we wrote "Via Air Mail," and also at the bottom, so that they could not look at the name at the top or the State at the bottom without seeing "Via Air Mail." This went through a humming. We mailed it at Vincennes at 10 o'clock in the morning and it got into San Francisco the next night at 6 o'clock. The queen and bees were apparently in the same condition as when they started, consuming practically no candy. The postage for one ounce is 16 cents. In shipping in quantities, smaller and lighter cages might be devised. We will soon have air mail service from New Orleans to Chicago and it will only be a short time when air mail service will connect us with all foreign countries. Queens may then be shipped as safely to England or Australia as they can now be shipped to a neighboring state. Jay Smith.

Vincennes, Ind.

Wisconsin Beekeepers Express Appreciation. On the second day of the Beekeepers' Field Meeting at Fond du Lac, August 12 to 14, the Wisconsin beekeepers, feeling that H. F. Wilson, Dr. E. F. Phillips and Editor Geo. S. Demuth deserved a token of appreciation for their tireless efforts at the five annual midsummer meetings, presented the two latter with a solid silver tea-set of splendid design and workmanship, and H. F. Wilson with a silver vase. Joseph M. Barr of West Allis, Wisconsin, who made a presentation speech, referring to the unselfish help that these men had given, expressed the love of the Wisconsin producers for the three men in question, by comparing it to Robert Burns' love of James, the Earl of Glencairn. Mr. Barr repeated the tribute by Burns:

"The bridegroom may forget the bride
Was made his wedded wife yestreen;
The monarch may forget the crown
That on his brow an hour has been;
The mother may forget the child
That smiles sae sweetly on her knee;
But I'll remember thee, Glencairn,
And ae that thou hast been tae me."

Dr. Phillips, Mr. Demuth and Mr. Wilson each responded to the presentation, thanking the Wisconsin beekeepers for their generosity and pledging their continued interest in the success of the association. H. H. Root.

Bees Remove Flesh from Mice. While inspecting the apiary of Adolph Rissler, Sandusky, Wis., I found above the queen excluder the skeletons of three mice. The flesh had been entirely removed from the bones, leaving them bare. The bones were covered with a thin covering of propolis, evidently put there by the bees after they found these were too tough to be removed. I have heard of bees stinging

mice to death before, but never heard of them removing the flesh from the bones as they did. The mice were evidently in the super when it was put on in the spring, because there were no holes by which they could get in through the supers any place. I think I still have the skeleton at home if at any time anyone should doubt my statement.

Gotham, Wis. C. M. Gwin.

Bee Explores Ear. On page 607 of September Gleanings Donahey has very well pictured the way one's ear feels when a bee goes on an exploring expedition within. I have had the same experience, although the bee soon gave it up and backed out.

Mr. Barclay, president of the New Jersey Beekeepers' Association, however, was not so fortunate when a bee entered his ear, and he was obliged to consult a physician who flushed the ear with tepid water and thus floated out the bee. This suggestion may prove helpful to someone who may have a bee start one of these personally conducted tours of the ear.

Pennington, N. J. E. G. Carr.

Loading Combs Wrong Way. In answer to W. L. Wilson, page 596, September Gleanings, I also once thought that combs should be loaded lengthwise of the wheelbarrow, but experience proved I was wrong. When heavy combs of honey are placed in a super lengthwise of the barrow it develops a desire to flop over on the side towards which the combs are placed. After picking up a few supers of honey from the ground, I decided that it is easier on both the combs of honey and myself, if they are loaded crosswise. Also four supers (the young man in the photos wheels as high as six supers) are easier wheeled when crosswise. Leslie Burr.

Willits, Calif.

Convenience in Rendering Wax. For rendering wax I use the outside tank of a Hershiser wax press, but any big tank about 18 inches deep will do, if it fits the stove. If you work outside have a tight cover. An outlet valve is handy. Beside the tank I use an old four-quart stew-kettle, with the bottom out, and a stiff wire bail from a water bucket hooked into the ears of the stew-kettle, then the extra wire bent and wired to the edge to make a handle. I also use a one-quart dipper that will go inside the stew-kettle easily. A piece of good close burlap goes over the kettle outside and is held in place by a string tied tight around next to the top. Cut off the surplus burlap. Now fill the tank half full of water—put in the wax to be rendered, and boil thoroughly after melting. Cover up and let the fire down till boiling stops, and there is a good depth of clear wax on top. Now sink the strainer slowly into the wax and fill by straining the wax upwards through the burlap. Dip it out with the quart dipper into a five-gallon can with a little hot water in the bottom. Repeat as long as there is much wax on top, then refill the tank and reheat. After getting out 100 pounds or so of wax let the fire out. Next morning about two inches on top will be solid and wax-bound. Take this off and save it till the next time.

Laplata, N. M. Harrison H. Brown.

Aster Honey for Winter. I have read with considerable interest H. D. Murry's article in the September Gleanings regarding aster honey. I have been intimately connected with the beekeeping industry for more than forty years and almost every year the bees in this locality have wintered on aster honey. They have been mostly wintered out of doors and I was never able to detect any bad effect from the aster honey stores until last winter when I lost more than half of my colonies and could discover no other cause than the food. They were strong in young bees in the fall, were well packed and there was no sign of disease. Along toward spring they died. The hives were filled in the fall with aster honey. I had seen the statement a number of times in the bee books and journals that it is not a good winter food but thought it must be due to a mixture of honey from some other source.

Dr. E. C. Garner.

Martinsville, Ohio.

National Honey Week. Sometime ago I sent out a questionnaire to a number of states regarding the possibility of a national honey week, and a sufficient number have replied so that the American Honey Producers' League has decided to attempt something this year. A national honey week has been set for November 16 to 22 and all of the states are requested to help in this movement. It is possible that this may not be the most suitable week for all states, but our idea was that the week before the Thanksgiving holiday period would be the best. If it seems desirable this week can be changed next year. We will be glad to furnish individuals and local associations with general instructions for carrying on such a week if they will write to us. H. F. Wilson.

Madison, Wis.

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GLEANED BY ASKING

Geo. S. Demuth

Preventing Honey from Granulating.

Question.—Where is the best place to keep honey to prevent granulation?

Illinois. Delbert L. Heidenreich.

Answer.—Comb honey should be kept in a warm, dry room where the temperature does not fluctuate much. A good grade of clover comb honey that is well ripened and sealed can usually be kept over winter without granulation, but that which is stored at the close of the honey flow often granulates before spring if not kept in a warm place. It is more difficult to keep extracted honey in the liquid form. The only way this could be done would be to store it in a room having a temperature like that of summer, or to heat it to about 150° F. in order to dissolve any crystals that may have started. When bottling extracted honey for the market, it will remain liquid longer if heated to 160° F. for a short time, but great care must be taken to prevent overheating when such a high temperature is used. If the honey is kept at 160° too long its flavor will be injured by overheating.

Preventing Bubbles When Bottling Honey.

Question.—How can I get rid of bubbles in the honey when bottling it? E. E. Hutchins.

New York.

Answer.—Since most of the air bubbles get into the honey when it is poured from one vessel into another, this trouble can be prevented to some extent by using what is known as the gooseneck fillers as described on page 633 of the October, 1922, issue of Gleanings in Bee Culture. This fills the jar from the bottom, the filler being raised up as the jar is filled, instead of directing the stream of honey from the top. Another way is to let the honey strike the side of the jar in filling instead of directing the stream down into the middle of the jar. Still another way is to fill the jars with honey while cold, allowing sufficient room for expansion when heated, then heating to the desired temperature to prevent granulation. In this case the honey is heated by placing the jars on a rack in a wash boiler or tank which is filled with water to the necks of the jars, then heating to the desired temperature.

Winter Repository Above Ground.

Question.—Would a building having its walls packed with shavings, winter bees successfully, or would you recommend an underground cellar instead? Joseph Widrick.

New York.

Answer.—A winter repository above ground can be made to winter bees successfully provided the walls are thick enough, but in your locality it would be necessary to have several feet of packing between the walls in order to prevent too much fluctuation of temperature within. A better way is to build an underground cellar putting it deep into the earth. Some of the most successful cellar-wintering in this country is in cellars built deep enough so that a false ceiling can be put in below the frost line, the space between the false ceiling and the floor above being packed with planer shavings or sawdust.

Feeding Dilute or Unripe Honey for Winter.

Question.—Would you advise feeding honey diluted with water or unripe honey, to the bees in the fall? Louis F. Kasch.

Illinois.

Answer.—If the honey is of good quality such as a good grade of white clover, sweet clover or alfalfa, and you are sure there is no American foul brood in the apiary where this honey was produced, it can be fed to the bees safely at this time. However, unripe honey is not as good for winter stores as that gathered earlier and well ripened. To be on the safe side it is better to feed syrup made of equal parts, either by volume or by weight, of granulated sugar and water for winter stores.

Wintering One Colony Above Another.

Question.—Could one colony be wintered above another with a double screen between and an entrance for each, in case of a shortage of winter cases? Ronald A. Peel.

Ontario.

Answer.—Such an arrangement for winter is not advisable. By having an entrance above and below and a screen between, there would be a circulation of cold air through the hive (the air coming into the lower entrance and going out of the upper entrance during cold weather) that would carry the heat out of the hive rapidly.

Winter Packing Saves Stores.

Question.—Do bees eat more honey when they are packed in winter cases than they do when left unpacked? Roy Henson.

Illinois.

Answer.—As a rule, it is just the other way around. Winter packing provides a more nearly even temperature within the hive which causes bees to remain quieter than if compelled to generate heat to keep warm during cold spells, or be disturbed and induced to fly too frequently during warm spells of weather. Bees consume the least when they are the quietest.

Dandelion Honey for Winter Stores.

Question.—We have an early flow of dandelion honey that just about fills one shallow extracting super. Is it advisable to save this

super of dandelion honey for winter stores, leaving it on the hive during the summer?

Montana. Ray C. Hopkins.

Answer.—Dandelion honey is not as good for winter stores as your sweet clover or alfalfa honey. You can leave this food chamber filled with dandelion honey, on the hive during the winter and still have the best of winter stores by feeding each colony 10 to 20 pounds of sugar syrup as the last brood is emerging in the fall, so that the syrup will be placed where it will be used first, leaving the dandelion honey for spring brood-rearing.

Causes of Winter Loss.

Question.—What causes bees to die in winter when they are well protected and have plenty of honey left? S. Yessian.

Connecticut.

Answer.—As a rule, such winter loss in the North is brought about either by an insufficient number of young bees to keep up the temperature of the winter cluster, or by poor winter stores together with the long confinement without cleansing flights. Bees do not normally void their feces except during flight. When they are compelled to use food which contains a large amount of indigestible material, when it is too cold for them to fly, they often become so restless from the retention of feces that they wear themselves out and die before they can be relieved by a flight in the open. This condition can be remedied by feeding each colony 10 to 20 pounds of sugar syrup during October so that the syrup will be placed where it will be used first during the winter, leaving the honey to be used for spring brood-rearing.

Size of Bee Cellar.

Question.—What should be the dimensions of a bee cellar to hold 60 colonies?

Nebraska. John W. Jones.

Answer.—A convenient rule for figuring the size of a bee cellar is to allow two square feet of floor space for each colony. Thus, for 60 colonies you would require 120 square feet of floor space, or a cellar 10 by 12 feet. However, since you may want to increase the number of your colonies it will be advisable to build the cellar much larger than this.

Corn Fodder for Winter Protection.

Question.—Is it a good plan to set shocks of corn fodder around each hive to protect the bees in winter? K. V. Weimer.

Ohio.

Answer.—It will be better to set the fodder along the fence, around the apiary, for a windbreak, and pack the hives in the usual way, than to place the fodder around the hives. Fodder is entirely too lose for winter packing since currents of air can penetrate through, to some extent. To set shocks of fodder over the hive would deprive the bees of the benefit of the sun shining on the hive, and at the same time not afford much protection so far as retaining the heat of the hive is concerned. Fodder can be used to form a windbreak around the apiary, but it can not well be used as a substitute for winter packing.

Small Objects Attached to Bees' Feet.

Question.—What are the fringy-looking objects hanging to my bees' feet? They are about the size of a small grass seed and seem to have grown to their feet.

Virginia. Bruce Bedsaul.

Answer.—The fringy-looking material which you find attached to the bees' feet may be the pollen of the milkweed. Pollen masses of the milkweed are clamped to the feet or legs of the bees in such a manner that the bee is unable to rid itself of them. This is true only of certain species of the milkweed.

Full-Depth Supers for Food Chamber.

Question.—For the past two years I have wintered my bees in two hive bodies protected by a winter case with good success. Is there any advantage in the shallow extracting super instead of a full-depth hive body for the food chamber? Ralph W. Nelson.

Nevada.

Answer.—It is doubtful if there would be any advantage in your locality in using shallow extracting supers instead of full-depth supers for food chambers. In a very cold climate there is a theoretical advantage in the shallow extracting supers in that the winter chamber is smaller and therefore is easier to keep warm. But in practice there should be but little, if any, difference in the way the bees winter in two full-depth hive bodies or in one full-depth body plus a shallow extracting super, in your locality. The full-depth hive body has the advantage of holding more honey for winter and spring brood-rearing, as well as having the same size frame for the entire equipment.

Aster Honey for Winter Stores.

Question.—I am sending a specimen of a honey plant from which all my stronger colonies have stored a good supply of honey. What is the name of this plant and is honey from this source good for winter stores?

Indiana. L. L. Shields.

Answer.—The plant is an aster. Aster honey is not considered good winter stores in the North where bees are confined to their hives without a cleansing flight for a long period. However, when aster honey is stored during a rapid honey flow and is well ripened, many report successful wintering even when bees are denied cleansing flights for long periods.

Odor from Hives in the Fall.

Question.—There is a peculiar odor from my hives every fall beginning from September 10 to September 25 and lasting two or three weeks. What causes it? Geo. R. Wright.

Indiana.

Answer.—The odor is no doubt from the evaporation of nectar gathered from

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fall flowers. In many localities the odor coming from the hives during the process of ripening nectar from fall flowers is quite strong. By noting what the bees are working on you may be able to determine which plant is furnishing this nectar. As a rule, after the nectar has ripened this odor disappears and the honey is not necessarily strong in flavor.

Removing Food Chamber for Cellar Wintering.

Question.—When wintering bees in the cellar would it be all right to take off the shallow extracting super (food chamber) which is filled with honey and store it in a warm, dry place until spring, then give it back to the bees?

Minnesota. I. W. Westlund.

Answer.—Yes, this plan has the advantage of making the hives easier to handle in putting them into the cellar and taking them out. Also if you have a warm room in which to store the food chambers, the honey will keep better than on the hives in the cellar. It may happen, however, that in taking away these food chambers you will take away the very best of the winter stores, leaving poor stores in the brood-chamber. This can be corrected by feeding each colony 10 to 20 pounds of sugar syrup after the food chambers have been taken away.

Amount of Honey Left in Brood-chamber.

Question.—If the bees have been working in a super, does this mean that there is enough honey in the brood-chamber for winter?

Ohio. Arthur Gerhart.

Answer.—The amount of honey left in the brood-chamber at the close of the season depends upon the character of the honey flow and whether or not there is a fall honey flow as well as upon the size of the brood-chamber. When there is a fall honey flow, the bees usually crowd considerable honey into the brood-chamber as the honey flow tapers off late in the season, so that even when extracted honey is being produced, there may be enough honey in the brood-chamber for winter. But where there is no fall honey flow there is not enough honey left in the brood chamber, as a rule, for winter and spring use when extracted honey is being produced even in large brood-chambers.

Feeding Fermented Honey.

Question.—Is it safe to feed honey which has slightly soured? This honey is unripe and thin. P. L. Griffith.

Washington.

Answer.—Honey that is slightly fermented can be fed to the bees at any time when they are able to fly freely every few days. In your location, feeding this sour honey may cause no trouble even in winter, but where bees are confined to their hives for several weeks at a time it would not be safe to feed such honey. Throughout the greater portion of the United States and especially in the North, winter food for bees should be of the very best. Any inferior honey, such as sour honey, honeydew or honey from fall flowers, should be saved until spring when the bees will use large quantities of stores for brood-rearing. At that time inferior food does no harm, for then the bees are able to take a cleansing flight every few days.

Number of Bees Needed for Winter.

Question.—How many pounds of bees are nedeed in a colony for winter? H. McCort.

Ontario.

Answer.—There is so much variation in the size of colonies of bees in the fall that it would be difficult to give an answer to this question that would fit all localities and all seasons. Furthermore, a small cluster of young bees would, as a rule, winter better than a large cluster of old, worn-out bees. Roughly speaking, there should be not less than about three pounds of young bees in the hive at the beginning of winter. In addition to these there will probably be as many or more old bees that will not survive the entire winter. However, by reducing the size of the winter chamber, it is possible to winter colonies much smaller than this. In fact, one pound or even less can often be wintered when properly protected in a small chamber.

Shipping Comb Honey.

Question.—Can comb honey be shipped safely by freight or express in corrugated shipping cases without other protection in single-case lots? Elmer R. Porter.

Ohio.

Answer.—No. Comb honey, whether in corrugated paper cases or in display cases should be shipped in carriers. These are simply large crates made to hold eight cases of comb honey and have a cushion of straw under the cases. This prevents the cases being thrown about as they would be if handled singly.

Ripening Honey Artificially.

Question.—I have some extracted honey which was not sealed when taken from the hive. Is there any way to ripen this honey so that it will not sour in the pails or be otherwise inferior to honey that is ripened by the bees? C. E. Moore.

Michigan.

Answer.—It is possible to ripen honey artificially to some extent by placing it in shallow vats and exposing it to a very dry atmosphere. This would be difficult to accomplish in your locality at this time unless the weather should turn unusually dry for when honey is exposed in this way when the atmosphere is damp, it will become thinner instead of thicker. If it is placed in shallow vats in a room heated artificially to 90 or 100 degrees Fahrenheit, for several days, it will be greatly improved, but the flavor will not equal that of honey ripened by the bees.

TALKS TO BEGINNERS

Geo. S. Demuth

Throughout the greater portion of the United States and Canada the season's work with the bees should be finished this month so that the colonies may be left until spring with but little if any attention, except in the extreme north, where the bees are wintered in the cellar, in which case the final work of storing the bees away for winter is postponed until November or in the extreme south, where some work may still be done with the bees in November. For most northern beekeepers, therefore, the final preparations for winter should be finished in October while the weather is suitable for such work.

The Wintering Problem.

In the North the bees usually discontinue brood-rearing entirely, late in September or early in October, and begin their long winter rest. If all goes well during the winter they do not again rear brood in the North until March; but if the winter is severe and the bees age rapidly because of poor food, lack of protection, lack of numbers to keep up the warmth of the hive, or because the bees were old at the beginning of winter, they may begin to rear brood again in February or even in January, in the North. In the South brood-rearing is continued until later in the fall and usually begun again in January or February, thus making the period of rest shorter. Other things being equal, the better the bees winter the longer the broodless period.

Bees do not hibernate in winter as do many other insects, but when conditions are favorable they remain quiet, thus conserving their energy so that they do not age materially during the broodless period. If they lived only as long during the winter as they do during the active season (six to eight weeks) it would not be possible for them to survive the northern winters. By remaining quiet they are able to prolong their lives four or five times as long as during the active season, thus enabling the colony to survive until brood-rearing can safely be resumed in the spring. The problem of wintering for the bees is, therefore, that of saving their energy in order that they shall live longer. For the beekeeper the problem is that of providing conditions under which the bees can remain quiet, for it is only under certain conditions that they are able to do so.

Size of Cluster Needed for Winter.

The first essential for good wintering is to have the colonies in good condition in the fall. It is a mistake to count as winter loss the loss of colonies that are not in a normal condition in the fall, for one can not lose that which he does not have. If the colonies are too small, or if they are made up largely of old bees that will die from age before brood-rearing can be resumed in the spring, good wintering can not be expected.

A good colony in a single-walled hive, will occupy not less than five or six of the spaces between the combs when a cluster is formed on a frosty morning in October. In a double-walled hive, or a hive packed in a winter case, the cluster should extend across the hive and touch the sides. In fact, in well-protected hives the bees may occupy the entire hive, even on cool mornings in October and November, while in unpacked hives they are forced to form a cluster leaving portions of the hive unoccupied.

Now that it is too late to rear any more young bees, it is a good plan to unite weak colonies that do not occupy five or six spaces between the combs, on a frosty morning. Those who did not unite the weak colonies in September as advised in this department last month, can still do so but following a different procedure. After brood-rearing has entirely ceased and the little colonies have formed clusters, it is possible to unite two or more of them without placing the newspaper between as described last month. Instead, the combs not occupied by bees can be taken out of one hive, then the combs containing the cluster from the other hive can be lifted *en masse* and united with this colony in such a manner that the two clusters touch each other. After brood-rearing has ceased, bees that have formed a cluster do not, as a rule, fight each other when united in this way. In uniting weak colonies, the combs heaviest with honey should be left with the bees.

Another way to fix weak colonies for winter, is to contract the hive to fit the cluster. This can be done by removing the combs unoccupied by bees and putting in a division-board to make the winter chamber smaller. In this case a tight-fitting division-board may be put in place and fastened so that packing may be put in back of it, or close-fitting chaff division-boards may be used to fill up the space in the hive. While it is not advisable to permit any colonies to approach winter that are too small to occupy a full-size brood-chamber, it is often surprising how small a colony can be wintered when prepared in this manner, especially if the bees are young and other conditions are right.

Winter Stores.

The second essential for good wintering is an abundant supply of food for winter and early spring. Those who provided each colony with a shallow extracting super in time to have it filled with early-gathered honey as advised in previous talks, have already provided a sufficient supply of honey for winter and spring. Those who did not do this, especially if extracted honey has been produced, may find that the colonies do not now have enough food to insure them against starvation. The safest way to tell whether the bees have enough honey is to weigh the hive. If platform scales are not available for this purpose, ordinary spring scales can be used by hooking first under one end of the hive and then the other, lifting the end of the hive clear of its stand each time but not higher. The sum of the two readings thus secured is the total weight of the hive, or nearly so.

A standard ten-frame hive made of white pine having a metal cover and an inner cover, but with empty combs, weighs about 34 pounds. To this should be added five or six pounds for the bees and a little pollen, making the total weight of the hive and the bees without the honey, nearly 40 pounds. Since each colony should have at least 25 or 30 pounds of honey for winter, the standard hive, therefore, when well provisioned, should weigh not less than 65 to 70 pounds. The Buckeye hive, without the chaff tray or cover, should weigh 80 to 85 pounds. Any colonies that weigh less should be fed a sufficient amount to bring the weight up to these figures. If frames of honey are on hand, one or two combs containing but little honey can be taken away and frames of honey inserted in their place, but if not, sugar syrup should be fed.

How to Make Syrup for Fall Feeding.

When feeding bees for winter the syrup should be made of about two parts of granulated sugar to one part of water, either by weight or by measure. It is not advisable to use brown sugar or anything but granulated sugar for this purpose, especially in the North. It is well to count on using as many pounds of sugar as the colony lacks in its full supply of stores, not counting the water used in making the syrup, for there is always a loss of weight in feeding. For instance, if a colony lacks ten pounds of honey, it will need ten pounds of sugar. In making the syrup five pounds of water will be added to this ten pounds of sugar, thus making 15 pounds of syrup, but after it is fed to the bees the net gain will not be much more than ten pounds.

To make ten pounds of syrup, put five pints of water into a vessel and heat it to the boiling point. Then pour in ten pints of sugar and stir until all of the crystals are dissolved. In order to reduce the tendency of this thick syrup to crystalize in the combs or feeders, it is well to dissolve an even teaspoonful of tartaric acid in a little water and add this to the water while heating. After the sugar has been dissolved, the syrup should again be brought to the boiling point if acid is used and held there for a few minutes in order that the acid may act upon the sugar to prevent crystallization. Care should be taken not to scorch the syrup

An ordinary friction-top honey pail makes one of the best of feedeers for fall feeding. To make such a feeder punch about 30 holes in the cover of the friction-top pail, using for this purpose a small wire nail, such as those used in nailing frames. The feeding is then done as described in the article by Morley Pettit in this issue.

Quality of Winter Stores.

During severe winters probably more bees are lost because the stores are of poor quality than from any other cause. In the South, or in any locality where the bees are able to fly freely every week or two during the winter, it does not make much difference about the quality of the stores, but where the bees are confined to their hives for a long period without a cleansing flight, it is necessary to supply them with the best of stores. Honey that contains considerable indigestible matter is almost sure to result in poor wintering in the North unless the weather is unusually mild, permitting frequent cleansing flights. Bees do not normally void their feces except during flight and when they consume food containing a considerable amount of indigestible matter, the accumulation of feces causes them to become restless and wear themselves out in useless activity during the winter when they should remain quiet in order to live long. White clover honey gathered during a rapid honey flow, alfalfa honey if not granulated, alsike clover honey and buckwheat honey if not mixed with honey from other fall flowers, is good for winter stores, but most late-gathered honey is not good for winter. Unfortunately, so far as the quality of stores is concerned, the bees place the honey last gathered below that which was stored earlier, and it is used first in winter. For this reason, in the North, it is often advisable to feed each colony 10 to 20 pounds of sugar syrup as the last of the brood is emerging in October, in order to induce them to place this where it will be used first. This should be given regardless of

the amount of honey already in the hive. In some localities feeding one or two 10-pound pails of syrup in October is of greater importance so far as wintering is concerned, than any protection that may be given.

Winter Protection.

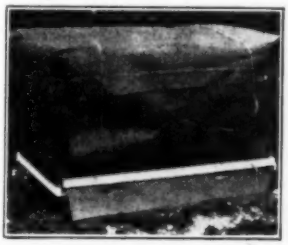
The third and final requirement for successful wintering is that of winter protection. While colonies of bees that are in good condition in the fall, having a large proportion of vigorous young bees and having stores of the best quality (especially that in the inner circle which will be used first during the winter) are hard to kill by exposure, this is no excuse for omitting winter protection which will enable the bees to come through the winter with greater vitality than otherwise. It may be given in the form of the double-walled hive; by packing the single-walled hives in winter packing cases as described by Morley Pettit in this issue; or in the far North, by carrying the hives into the cellar. To pack bees for winter in a double-walled hive, all that is necessary is to put the chaff tray in place, snug down the chaff or other packing material around the outer edge of the tray, so that there will be no cracks between the burlap bottom of the tray and the water table of the hive through which air currents could pass. Finally, put in the entrance-cleat to reduce the entrance.

Double-walled hives are easily packed for winter. Simply set the tray of upper packing in place and reduce the entrance.

In packing only a few hives it is often possible to find store boxes that can be used as winter packing cases that will allow three or four inches of packing below, from three to six inches on the sides, and sox or eight inches on top. A bridge or tunnel must be made to connect the hive entrance with the entrance to the winter case, so that the bees can fly when the weather is suitable. Fine planer shavings from a planing mill, dry sawdust, wheat chaff and dry forest leaves are some of the packing materials most commonly used. When leaves are used, it is well to crush them as fine as possible and crowd them in place, but the other packing material mentioned should be poured in and packed only lightly.

A pair of hives arranged for packing with tarred paper. The rim of 1 x 2" material is shown in place.

Those who have single-walled hives and find it inconvenient to provide substantial winter cases, can pack their bees for a few cents per colony for material by using tarred paper to hold the packing in place. To do this provide a frame of 1 x 2" material to go around the hive at the bottom as shown in the accompanying illustration, then cut a piece of tarred paper from the roll long enough to go around the hive and allow three or four inches of packing at the sides. This is then put in place and fastened at the bottom by nailing on pieces of lath in such a manner that the paper extends to the ground to prevent the wind from blowing under the hive. The ends of the paper are then pinned together with a nail when the case is ready to receive the packing material. By first packing the corners, then pouring the packing material in at the sides loosely, bagging of the sides can be prevented. An opening is then cut through the paper for an entrance. The upper edges are then folded down and another piece of tarred paper put in place for the cover, this being tied in place with a piece of binder twine.



Two colonies packed for winter in a case made of tarred paper. The paper is held in place at the bottom by nailing on lath. Single colonies can also be packed in this way.

XUM

JUST NEWS
Editors

The Connecticut Beekeepers' Association will hold a meeting at Hartford, Conn., on Oct. 25. Editor Demuth expects to attend this meeting.

* * *

The meeting of the Georgia Beekeepers' Association will be held in Savannah, Ga., October 29 and 30. The sessions will be held in the Auditorium of the Savannah Board of Trade. Further particulars in regard to this meeting may be had by writing L. C. Walker, Alma, Ga., secretary of the Georgia Beekeepers' Association.

* * *

The annual meeting of the Northern Illinois and Southern Wisconsin Beekeepers' Association will be held in the courthouse at Freeport, Illinois, on Tuesday, October 21. B. Kennedy, 416 East State St., Rockford, Ill., is secretary of this association.

* * *

The Alabama Beekeepers' Association will meet for their annual meeting Thursday, Nov. 6. The meeting will be held in the Chamber of Commerce Auditorium at Montgomery, Ala. M. C. Berry is secretary of this association.

* * *

Export shipments of honey from Canada this year indicate a new trend in the movement of honey in Canada, which seems to be due to greatly increased production of honey in Manitoba, according to a report to the Department of Commerce at Washington from Consul in Charge John G. Erhardt, at Winnipeg, Canada. According to official figures, Canada exported to the end of May, 1924, 411,790 pounds of honey to the United Kingdom. During the same period, her total exports of honey were 438,885 pounds. In 1923 Canada exported 1091 pounds of honey to the United Kingdom and in 1922 only 162 pounds, and her total exports to all countries in either 1922 or 1923 did not exceed 25,000 pounds.

* * *

The "Beekeepers' Item," published in San Antonio, Texas, is now under new management with E. G. LeStourgeon as editor. H. B. Parks and W. E. Joor are associate editors. It is now the official organ of the Louisiana State Beekeepers' Association, the Texas Beekeepers' Association and the Texas Honey Producers' Association.

* * *

The United States Department of Agriculture report of the condition of bees, honey plants, and yield of honey to September 1 places the average yield per colony for the entire United States at 43.9 pounds this year as against 34.9 pounds in 1923 and 41.9 pounds average 1915 to 1923. According to these figures, therefore, the total yield of honey in the United States this season is considerably above that of last year and slightly above the average. The condition of the colonies on September 1 is placed at 91.9 per cent of normal as against 85.9 per cent in 1923 and 91.2 per cent average from 1915 to 1923. The condition of the fall honey plants is placed at 78.2 per cent of normal as compared with 73.8 per cent in 1923 and 77.4 per cent average 1916 to 1923.

The yield of surplus honey to September is given for each of the states below:

State:	Yield of surplus honey per colony to Sept. 1 (spring count) *Average 1915-23. Lbs.	1923. Lbs.	1924. Lbs.	Pct. total surplus honey usually prod. by Sept. 1. Pct.
Maine	34	39	22	82
New Hampshire	35	47	33	90
Vermont	47	55	32	96
Massachusetts	34	36	30	77
Rhode Island	37	43	30	97
Connecticut	40	45	41	85
New York	57	71	37	89
New Jersey	34	27	19	89
Pennsylvania	42	38	24	82
Delaware	18	10	20	85
Maryland	41	38	38	93
Virginia	35	34	26	90
West Virginia	33	30	35	89
North Carolina	28	26	38	90
South Carolina	25	36	32	80
Georgia	28	22	37	86
Florida	53	48	62	94
Ohio	41	30	48	90
Indiana	36	24	64	80
Illinois	40	38	43	77
Michigan	53	63	50	91
Wisconsin	54	66	54	94
Minnesota	54	50	74	86
Iowa	55	50	75	90
Missouri	34	15	35	79
North Dakota	71	88	115	99
South Dakota	71	84	100	92
Nebraska	47	38	68	92
Kansas	32	26	58	87
Kentucky	34	24	26	80
Tennessee	23	25	25	84
Alabama	30	16	36	91
Mississippi	29	16	37	90
Louisiana	38	38	50	95
Texas	34	17	42	85
Oklahoma	30	16	28	86
Arkansas	25	15	21	84
Montana	84	106	85	91
Wyoming	82	70	70	88
Colorado	46	34	52	93
New Mexico	49	48	35	82
Arizona	57	37	43	94
Utah	67	55	52	93
Nevada	62	..	..	..
Idaho	62	39	61	97
Washington	53	54	70	92
Oregon	50	31	74	95
California	55	37	38	94
United States	41.9	34.9	43.9	87.1

*In a very few averages a shorter period was used.

BEES, MEN AND THINGS
(You may find it here)

"I timed a queen while she was at work laying and found she laid an egg every eleven seconds."—E. L. Miles, Elkhart County, Indiana.

"I have been using the extra super of honey as a food chamber in my apiary for ten years. When I advocated this in place of spring feeding many of our old timers laughed at me."—E. Vanderwerkey, Fairfield County, Conn.

"The rains during the summer have caused white clover to spring up, the like of which I never saw before. We are looking ahead for next season to be a good one but we may be disappointed like we were this season."—A. L. Kildow, Putnam County, Ill.

"Colonies will be short of young bees this winter. The queens slowed up in egg-laying during cold wet weather and the bees crowded the brood-chamber with honey. Colonies will be rich in stores for winter. Our fall flow was spoiled by wet and cold weather and we have had a poor season all around."—J. H. Fisbeck, St. Louis, Mo.

"I was talking with Inspector DeSellem of Los Angeles County and he told me that only 50 per cent of the bees of Los Angeles County would survive the winter. I think the above will apply to all of southern California. I have never seen the bees in such a weak condition during the bean bloom, as this season. Bees are crowding the brood-chamber and have deserted nearly all supers. My bees will carry through."—M. H. Mendleson, Ventura County, Calif.

"We have had an average of about 75 pounds per colony of a fine grade of alfalfa and sweet clover honey. Swarming was bad this season, especially in the yards run for comb honey."—Henry S. Boston, Canyon County, Idaho.

"Honey sales were good from June 10 until the 25th, then they slumped down to practically nothing. Sales began to pick up the last of July and were decidedly better in August. But they are not now, nor have they been, anything like as good as last season."—Luther A. Fink, Moore County, N. C.

"So far as I know I am the only one west of the Cascade Mountains who has used honey in an automobile radiator. The temperature here never goes lower than 12 degrees above zero and it has been that low only three times in 20 years. There is, therefore, very little need for anti-freeze material."—W. L. Cox, Grays Harbor County, Wash.

"The young white clover came in bloom this fall. This is unusual here. I have seen this only once before in 28 years."—E. Eveland, Iowa County, Wis.

"Success in wintering bees here depends a great deal upon the quantity and quality of the winter stores. Where the quality of the fall honey is not good, it invariably pays to feed 20 pounds or more of syrup made from the best grade of granulated sugar."—C. S. Nicholson, Ontario.

"I had good results from glass porches for my bee hives last winter. They keep the entrances open. I do not use ordinary window glass for that would be too much trouble. Instead I use glass cloth that has recently appeared on the market."—Peter Wolfarth, Du Page County, Ill.

"It seems scarcely possible to beginners in beekeeping in these days of large yields, reversing extractors and steam and electric honey knives, that only a few years ago, comparatively speaking, 15 to 20 pounds of honey was considered a good average yield. We then reversed the baskets in the extractor or reversed the combs themselves. A glimpse into the future would be startling."—Wilbert C. Wahl, Erie County, N. Y.

"The honey crop here has been very good. On three colonies used for comb-honey production, I produced over 350 pounds of comb honey. Plenty of rain this fall assures us a good honey flow next year."—D. D. Lovejoy, Brenner County, Iowa.

"Killing bees is an unpleasant task for me, therefore, for the past two winters I have been uniting a number of colonies. The newspaper method is used and only a few minutes are required to perform the operation. The bees are then wintered in the two hive bodies. In this way one colony is destroyed, the hive taken care of, the colony which is to be wintered is strengthened in bees and honey, and the labor of packing is not materially increased. Package bees make up the increase the following spring. Sometimes these doubled-up colonies are so strong in the spring that with the aid of a young queen from the South they can be divided and both divisions will be strong for clover bloom. Package bees are depended on for the increase and division is only made when colonies are very strong several weeks before clover bloom."—Ellsworth A. Meineke, Cook County, Ill.

XUM

A. I. Root's Story of His Own Life

Lying lips are an abomination to the Lord: but they that deal truly are his delight.—Prov. 12:22.

I forwarded the advertisement to the Postoffice Department at Washington, asking if something could not be done to stop such broadcast forgery of letters, with the names of good people attached, but I was told that unless I had been injured myself or had lost money by the parties mentioned, they could not do anything about it.

In an advertisement in the Anaconda Standard, Montana, they printed a letter supposed to be from Hiram Cronk. Mr. Cronk said that thanks to Duffy's, he was able to be out every day and take extensive walks in the severest weather. On being interviewed Mr. Cronk was supposed to have said that for many years Duffy's Pure Malt Whiskey had been his only medicine. He took a dessert spoonful of it three times a day with his meals and when he went to bed. The advertisement added that Mrs. Sarah A. Rowley, his daughter, wrote that, in spite of the fact that her father was 105 years old, he was rugged in health, thanks to Duffy's Pure Malt Whiskey.

The editor of "The New Voice" wrote to Sarah Rowley. This is the copy of her reply:

"The statement that my father, Hiram Cronk, was a user of Duffy's Malt Whiskey, is false. He never drank one drop of it in his life. My father never gave them this testimonial. Sarah Rowley.

"Ava N. Y., May 24."

Mr. Cronk died on May 13 at the age of 105. In a former letter his daughter said that her father had not been out of the house in five years and was very feeble, and yet the Duffy people claimed he told their agent that he took long walks every day. You see they got wind of the fact that there was a man living who was 105 years old. I do not know whether or not they really got someone to interview Mr. Cronk and his daughter. Mrs. Rowley, but at any rate the testimonial was all false. I asked the readers of Gleanings, whenever they came across such an advertisement, to cut it out and mail it to the editor of the paper in which it was found, with an emphatic protest against the practice of accepting advertisements from such a gang.

In 1905 or 1906, there was a walking contest in Cleveland, for people well along in years. A woman seventy-five years old won the race by walking two and one-half miles in twenty-six minutes. The Duffy Malt Whiskey crowd, always on the alert to get hold of anything that would enable them to find a foundation for their estimonials, got their eye on this contest and sent the winner a quart bottle of their whiskey. Then by some hook or crook they induced her to give them her picture together with a testimonial recommending their whiskey—at least they claimed the testimonial was from her and they gave the general impression that it was because of the regular use of their whiskey that she performed this great walking feat. If one should read the testimony carefully, however, he could hardly fail to notice that the woman did not say she ever used the whiskey or heard of it until after the walking feat.

It makes my blood boil every time I see one of these misleading advertisements, and when I found they had gotten hold of this old lady, I felt as if it were adding insult to injury.

It is a fearful thing to take the money of poor, hard-working women and give them nothing in exchange except plans which are really as ineffective as a horseshoe nailed over a door. This kind of humbugging and swindling I fought with all the energy I possessed. It came under different guises and different names.

A great trade has been carried on in our country in what are called electrical appliances for the cure of disease. I am firmly satisfied that these are humbugs and swindles. The fact that many tried them and were helped (in their opinion) does not change my convictions a particle. Neither does the fact that there were large manufactories engaged in making electrical belts, bracelets, braces, jackets and hair-brushes. Even in our own establishment, electric belts were purchased by women who were comparatively poor. Some paid as high as ten or fifteen dollars to the smooth-tongued agent. Magnetism is not electricity; and, even if it were, it would do no good.

Through all my Christian life I have been in the habit of asking God to help me and give me light in regard to the matter of sickness and pain. After such

prayer I have many times been strongly impressed with the importance of pure air, pure water, plenty of sunshine, and plenty of sleep. Do not, I beg of you, think of paying money to someone to pray for you, for a little careful reading of your own Bible will show you that such a course is almost exactly in line with that of Simon the Sorcerer.

Frauds in Patent Medicine.

And this matter of patent medicine: I am familiar with an instance where a patent medicine actually resulted in the death of a most valuable man. He needed the advice of a competent physician, but dreading to consult one and being attracted by the wonderful promises of a certain patent medicine, he depended upon that instead of upon his physician. When a real "doctor" was finally summoned it was too late.

It used to be my custom to send for and test different patent medicines advertised in the papers when free samples were sent for trial. I was always anxious to find out the truth and give it to my readers. One preparation very extensively advertised seemed to produce some effect, at least to the extent of giving relief for the special symptoms for which it was recommended. After further trial, however, I could not discover that it made any difference whatever, only that by taking a full dose it acted as a physic. This of course gave relief to some extent.

I requested our Ohio Food Commissioner to make an analysis of the medicine and he did so. It contained about 12 per cent of alcohol and the predominant chemical agent was epsom salts. In taking the medicine I had noticed a familiar taste but did not succeed in guessing what it was until he mentioned the epsom salts. I wrote to the commissioner and asked him whether it was the alcohol and epsom salts that gave temporary relief, or was it the particular herb that gave the medicine its name. He replied by saying that, as a rule, patent-medicine people had a common practice of giving a fanciful name to a very common preparation, advertising it as a wonderful discovery. In other words, a harmless root tincture was added simply as a blind. This whole thing was a fair sample of patent medicines that are usually sold for one or two dollars a bottle. A free sample, together with a little imagination, induces many people to make such a purchase.

Treating Sick People by Mail.

I once saw an advertisement of a treatment for a minor trouble I was experiencing in my old age. Just for the fun of it I wrote to the doctor (?) describing my symptoms. A very kind letter came, informing me that the great physician was so overwhelmed with business that it would be several days before he could get to my case. I saw at once that this carefully worded letter was a printed one.

In a few days the great doctor wrote and said that, as my case was peculiar, he had spent the greater part of one forenoon over it, and in his perplexity had called in another great expert. Together they spent the afternoon and finally decided that I could live only a little while longer if I did not have relief at once. They said it was a grave trouble. This letter, like the other one, was printed, of course. In a P. S., the doctor added that about $25.00 worth of treatment would fix me up in good shape.

Well, in about a week I got another letter saying that the doctor and his learned friend felt "troubled" about me, because I had not responded and that they thought I might have had difficulty in raising the $25.00, so they had decided out of the goodness of their hearts to stand $15.00 themselves, and that if I would send only $10.00 the medicine would come by first mail. I let this letter drop to see what more was coming. About once a week appeals of different kinds arrived. You see they were anxious (?) about my "critical" condition. Finally a letter came begging for some acknowledgment of some sort, if it were only a few words on a postal card. Then I replied something as follows:

"My good friend: If there is a doctor of any sort belonging to your institution who cares to take the trouble to write me a personal letter, I shall be very glad to receive it. You are just wasting your postage stamps in sending me printed blanks purporting to be typewritten letters. We are pretty well posted here and think we can distinguish a personal letter from a printed one, picked out from a pile of different kinds."

Of course, I never heard from them any further. It does not pay to be humbugged or misled by imitation letters. One of my own relatives once held up one of these printed letters and said, "Why, Amos, you surely must be mistaken. Here is a letter right from the doctor himself, and I know it has been written to me. See the different places where he speaks of my special trouble and of the money I have sent him." I had hard work to convince him that the letter he was holding would apply to hundreds of persons. The amount of money sent was not mentioned, nor the name of the trouble. The letters were ingeniously made to fit a large number of cases. These quack doctor-patent medicine shops had great piles of such

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letters. A stenographer looked them over and picked out the one that fit the case best, the stenographer who knows no more of medicine than a dog knows of astronomy managed the whole business. The head of the firm could go off on a vacation and the clerks could run the whole medical sanitarium (?) just by the use of these printed letters and they rake in the money during the proprietor's absence until he gets to be a millionaire.

Look out for your family physician to see that he is not forgotten and neglected when he is laboring unselfishly for the good of humanity. If you have any money to spare for medicine, give it to the doctor whom you know. Do not send it to some great quack who would be quite willing to see you in your grave within the next three weeks, provided he could get a good slice of your hard earnings.

The Electropoise and Oxydonor Fraud.

In the August issue for 1894 I gave an extended exposé of electropoise. Some months before that I had written it up with a caution in our Medina papers, because agents were selling the bauble throughout our county, and because religious papers seemed to be particular vehicles for advertising it. I felt greatly troubled to see our people during those hard times paying $25.00 for a thing no more valuable than a china nest egg and not a whit more scientific. I felt more troubled still to think that not a scientific paper, not a professor, not an electrician, in the whole United States, so far as I knew, had come forward to back me up. I wrote to the Scientific American and the editor said it was undoubtedly a fake and that they had no faith in it, but they did not print a single word of warning. Nobody seemed to care very much how much swindling was being done in that line.

I wrote to the religious papers that advertised the thing, calling them to order, but they did not seem to care as long as they got their money, and worst of all, men and women who ought to have known better questioned my right to criticise. They suggested that it was improbable that such prominent men would give the electropoise such a testimonial if there was not something in it. Some of my good friends mildly suggested, too, that perhaps I did not know quite everything, and maybe I was not quite up to the times in the way of improvements.

One day a woman was injured by an accident near our home. Mrs. Root took her in and cared for her until she was able to ride home. Before she went away she said that she had an electropoise and that it was a wonderful help. The poor woman was not able to talk very much, but she said that before she had the electropoise she was obliged to take great quantities of medicine in order to be up and get around. The agent who sold the thing, however, said that she must stop taking all medicine entirely or the apparatus would not work. Work, indeed! Well, she discarded all medicines of every sort and confined herself to following electropoise directions implicitly, and, strange to tell, she was very much better right away.

In the January 1 issue for 1895, I published a statement from "Electreity", a scientific journal published in New York, giving a complete exposé of electropoise and calling it a fraud.

A man once wrote me that he had discovered his electropoise was the best thing imaginable for frost-bitten feet. He said he had been using the electropoise for another ailment at a time when his feet were so swollen and sore that he could hardly walk and his feet suddenly got well. Now I believe that his feet got well and I am glad of it, but how could he prove that the electropoise had anything to do with it? I once had a terrible crick in my back and it suddenly got well, and I did not use any electropoise either.

The electropoise was much like the nickel-plated handle to a bicycle. Inside was some sulphur and a little sal-ammoniac. A wire was pushed through this mixture and the other end of the wire hitched to the ankle of the patient. The electropoise was dropped into a bowl of ice-water. No electricity passed through that wire. This could be proven by any battery tester or volt meter. There was no science about it as any scientific man could easily prove. I claimed there was neither science nor sense about it. Hitching a wire to a horseshoe would do the work just the same, or nailing the horseshoe over the door to cure frosted feet would have just as much effect. I suppose the sulphur and sal-ammoniac were put in to make people believe it was something like a dry battery.

New discoveries in science are being made every day, but it is not possible that some new discovery may decide that two and two make five instead of the orthodox four. The oxydonor, which was practically the same thing as the electropoise, was also a humbug, cheat and a fraud, and the proprietors hypocrites. The circulars contained two hundred and fifty testimonials with the word "Rev." in front of many of the names. This only made it more deplorable. Among the heathen no doubt one could get thousands of testimonials as

to the efficacy of their gods made of wood and stone, but it would not give us faith in those gods—on the contrary, the testimonials would make us lose faith in those who were so foolish. On page 333 of the April 15 issue for 1895 I published the names of four leading religious periodicals that refused electropoise advertisements. These were the Sunday School Times, the Christian Advocate, The Independent and The Advance. There was a fifth paper in the list, The Outlook, but at the last moment, just before going to press, a late copy of The Outlook came to hand with a large advertisement of electropoise, so of course I took it out of the list.

On page 321 of the April 15 issue, I published a statement from Dr. Wiley, U. S. chemist, and in the May 1 issue, page 372, a statement from W. C. Ballantyne, president of Oberlin College, both condemning electropoise and the practice of religious papers accepting such advertisements.

CANDY FOR WINTER FEED

When packing your bees be sure and give them some of this candy. Just what you need for colonies short of stores. Put up in convenient form, easily and quickly placed in hive. A trial will convince you. Send for circular and price.

H. H. JEPSON

237 Park St. Medford 55, Mass.

TOO LATE FOR CLASSIFICATION.

EXTRACTED clover honey, case lots, nearly water white. Write for prices. Don Barrett, R. F. D. No. 3, Ann Arbor, Mich.

FOR SALE—200 colonies of bees, guaranteed free from disease. Write for particulars. James Johnson, Pocahontas, Ark.

WANTED—Comb and extracted honey in large quantities at low prices to wholesale dealers. Howe Food Products Co., Superior, Wis.

WARRANTED PURE MATED Italian queens, $1.00 each, by return mail. Daniel Danielsen, Brush, Colo.

IN closing out my nuclei for the season I have some extra fine three-banded queens for 50c each, while the supply lasts. Jasper Knight, Hayneville, Ala.

FOR SALE—300 colonies of Italian bees in 10-frame Root hives, in first-class condition, as they have been inspected by state inspector. Will not sell less than 100 colonies. Earl Baker, Lake City, Mich.

FOR SALE—90 colonies bees, guaranteed free from disease, enough honey to winter, ten-frame hives, $900. 55 acres land included, $1400 for both. Good location. W. D. Hammond, Marathon, N. Y.

TRADE NOTES.

We offer 75 slightly used Demuth winter packing cases at 40c each; also 13-frame single-walled hives, empty, as good as new, nailed and painted, at $3.00 each; and 100 Standard double queen-mating hives, in A-1 condition. If interested, write for further information.

The A. I. Root Company, Medina, Ohio.

SOUR HONEY DEPT.

Root and Demuth and Mel Pritchard:

You have been printing a whale of a lot about the Hutzelman solution and tryin to boost it. I don't know how much you have boosted it, but I know that man, O. E. Barber, over in Ashtabula, as what tried it on 6000 combs and never got an occurrence, he says, and it all has boosted him. He's goin to change his name to Langstroth Hutzelman Barber, and I guess its all right. He aint a bad sort but this all has boosted him into one of the big fellers, and I aint no farther along for it and I know as much about bees as he ever did.

Nor it aint you fellers and Barber only as what Hutzelman's solution has soluted and got a goin. A beekeeper down near Newcastle, Pa., got the Hutzelman bug into his brain or into where his brain ought to be and got ready to stirrilize his combs. He had read how all the honey ought to be extracted clean out of the combs before applying the solution and not havin an extractor what does he do? Well, sir, he just takes all his effected combs and hangs 'em out in the open for the bees to clean out afore he dips 'em in the solution. Wouldn't that peel you? I have writ him and asked him just why he wanted to pepper all creation in his territory with foul brood afore tryin to get rid of it. Perhaps he wanted to beat Barber's record at Ashtabula, and have it to say as how he give American foul brood to all western Pennsylvania and then cleaned it all up with never an occurrence. That will beat Barber. But ain't it an almighty and ever-occurrin surprise as how mighty little a lot of beekeepers know even after all that Uncle Sam and everybody else has tried to learn em includin Doc Phillips? (Say, why didn't he discover Hutzelman's solution while he was sittin around Washington with nothin else to do only a lot of bossing?)

I say it is. I am for O. E. Barber and I believe him even as much as you fellers have boosted him and promenaded him and if I could I would put a big bunch of dynamite under all beekeepers like that Pennsylvania gonus and touch it off and be glad about what I had did, so I would. OLD DRONE.

P. S.—Please write me care of Gleanins any unpleasantness about bees or beemen you know of and I will correct it in my department. What do you know that aint worthy about R. B. Willson, N. Y. State hi-muck? I owe him somethin.—O. D.

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Classified Advertisements

Notices will be inserted in these classified columns for 7c per word. You must say you want your advertisement in the classified columns or we will not be responsible for errors. For special conditions on bee and queen advertising please write us. Copy should be received by 15th of preceding month to insure insertion. Cash with copy, if credit has not been established previously.

REGULAR ADVERTISERS DISCONTINUED IN GOOD STANDING.

(Temporary advertisers and advertisers of small lots, when discontinued, are not here listed. It is only regular advertisers of regular lines who are here listed when their advertisements are discontinued when they are in good standing.)

G. A. Bailey, J. D. Beals, Benninghof Farm, M. C. Berry & Co., Hazel Bonkemeyer, Crenshaw County Apiary, S. G. Crocker, Jr., E. F. Day, N. Forehand, W. J. Forehand & Sons, C. J. Freeman, D. T. Gaster, V. S. Gray, S. H. Hailey, Albert G. Hann, Hayneville Apiary Co., Sam Hinshaw, J. B. Hollopeter, W. A. Holmberg, Honoraville Bee Co., Jensen's Apiaries, Jasper Knight, Fred Leininger & Son, M. P. LeMunyon, The Marugg Co., G. H. Merrill, J. F. Moore, C. J. Morrison, E. E. Mott, Norman Bros. Apiaries, H. S. Ostrander, C. W. Phelps & Son, J. F. Rogers, A. I. Root Co. of Philadelphia, A. I. Root Co. of Iowa, John Schenk, R. B. Scott, Jay Smith, F. W. Summerfield, Superior Honey Prod. Ex., The V. R. Thagard Co., E. D. Townsend, R. L. Tucker, Clifton Weaver, Virgil Weaver & Son, American Can Co.

HONEY AND WAX FOR SALE.

AMBER honey, 60 lbs., $4.80; 120 lbs., $8.40. L. K. Hostetter, Lancaster, Pa.

FOR SALE—Clover and buckwheat extracted and comb honey. F. W. Lesser, Fayetteville, N. Y.

FOR SALE—Finest white clover honey in 60-lb. cans. Write for prices. A. S. Tedman, Weston, Mich.

FOR SALE—White clover honey in new cans, 11c. Sample, 20c. Hoehn & Honigford, Ottoville, Ohio.

FOR SALE—Clover, amber and buckwheat honey in 60-lb. cans and pails. M. E. Ballard, Roxbury, N. Y.

LIGHT amber extracted honey in new 60-lb. cans, two to the case, at $13.50. J. G. Burtis, Marietta, N. Y.

FOR SALE—Choice clover extracted honey in 60-lb. cans. F. E. Schriver, R. F. D. No. 3, Grafton, Ohio.

FOR SALE—Fine quality of raspberry-milkweed honey in new 60-lb. cans. P. W. Sowinski, Bellaire, Mich.

FOR SALE—Comb and extracted white clover honey. Prices on request. Dr. E. Kohn & Son, Grover Hill, Ohio.

FOR SALE—Extra-fine clover honey in new 60-lb. cans, two to the case, at $14.00. Adam Bodenschatz, Lemont, Ill.

FOR SALE—First quality basswood honey, 12½c per lb. in ton lots. Thos. Atkinson, R. F. D. No. 5, Omaha, Neb.

CHOICE clover honey in two 60-lb. cans to case for $14.00 per case; also fancy, No. 1 and No. 2 clover honey in clean sections 4 x 5, capped white. Write for prices, stating quantity and quality wanted. W. D. Achord & Son, 320 Howard St., Findlay, Ohio.

FOR SALE—Clover and buckwheat honey in 60-lb. cans. John N. DeMuth & Son, Pembroke, N. Y.

BUCKWHEAT honey in new cans, $12.00 case. Also few cases clover. Woodward Apiaries, Clarksville, N. Y.

NEW CROP sweet and white clover honey in new 60-lb. cans. Finest quality. Priced right. L. A. Thrall, Anthon, Iowa.

CLAFONY quality honey. Clover, 2-60's, $15.00; buckwheat, $12.00; also pails and kegs. Clarence Foote, Delanson, New York.

FOR SALE—Extra fine white clover honey in new 60-lb. cans, two in a case, 11c per lb. Sample, 20c. Martin Carsmoe, Ruthven, Iowa.

CLOVER and basswood blended by the bees, color and body fine. Prices upon request. State amount wanted. W. A. Jenkins, Rock Port, Mo.

FOR SALE—Extra fancy, white clover, extracted honey, new cases, new crop. Write for prices. Edw. A. Winkler, Joliet, R. D. No. 1, Ills.

FOR SALE—Three tons of clover honey of good quality in new 60-lb. cans, 2 to the case. Best offer will take it. Julius Victor, Middleport, N. Y.

FOR SALE—White clover honey in 60-lb. cans and 5 and 10 lb. pails. Price given on request. Sample, 15c. Chas. E. Schneider, Irvington, Neb.

HONEY—1924 crop clover extracted, thoroughly ripened, in cases of 120 lbs. Also buckwheat extracted in 60-lb. cans. Albert G. Hann, Glen Gardner, N. J.

NEW crop of sweet clover honey in 60-lb. cans, 12c per lb.; 5-lb. pails, 15c; buckwheat, 60-lb. cans, 10c; pails, 12c per lb. M. L. Freeman, Harlan, Mich.

FOR SALE—Extracted honey, new crop, white clover in new 60-lb. cans; prices on request. Sample 10c. Meyer Toom, Knoxville, R. F. D. No. 4, Iowa.

TRY Northern Michigan clover honey in your glass if you want something good, at 12c per lb. Sample 20c. The Freeman Bee Farms, Mesick, Mich.

FOR SALE—White honey in 60-lb. cans, also West Indian in 50-gallon barrels. Samples and prices on request. A. I. Root Co., 16-18 Jay St., New York City.

FOR SALE—New crop comb honey, No. 1 white, $5.50 per case; No. 2, $4.50; 24 sections to case, six cases to carrier. H. G. Quirin, Bellevue, Ohio.

FOR SALE—White clover and light amber honey. Prices on request. Three cases 1923 crop at $9.50 per case of 120 lbs. Henry A. Meyer, West Point, Nebr.

HONEY for sale in 60-lb. tins. White-clover Indian crystallized, 13c per lb. L. A. West Indian honey liquid, 11c per lb. Hoffman & Hauck, Inc., Woodhaven, N. Y.

FOR SALE—20,000 lbs. white clover extracted honey, almost water white, 1924 crop in 60-lb. cans and 5-lb. pails. Prices on request. Irvin R. VanDevier, Medina, Ohio.

FOR SALE—Northern Michigan fancy milkweed honey in 5-lb. pails at $8.40 per dozen. Sample 20c, which will be credited on first order. Lewis A. McIntire, Boyne City, Mich.

FOR SALE—Comb and extracted white clover honey, extracted in 60-lb. cans, and 5 and 10 lb. pails. Prices given on request. Sample, 15c. F. W. Summerfield, Waterville, Ohio.

NOW ready for the market, Townsend's Quality extracted honey. Put up in new cans and cases. There is "non better." Say how much you can use and we will be pleased to tell you just what we will furnish if for. Address E. D. Townsend & Sons, Northstar, Mich.

FOR SALE—Amber and buckwheat honey in 5-lb. pails and 60-lb. cans. C. J. Baldridge, Homestead Farms, Kendaia, N. Y.

FOR SALE—New crop clover honey, finest quality, put up in 60-lb. cans, also 5-lb. pails. Write for prices. W. M. Peacock, Mapleton, Iowa.

HONEY—Free wholesale quotations on 1924 crop of white clover and buckwheat extracted honey, in 60-lb. cans, 5 and 10 lb. pails, 3 oz., 8 oz and 16 oz. glass tumblers. Address Roscoe F. Wixson, Sales Dept., Dundee, N. Y.

FOR SALE—Honey in 60-lb. cans. Sweet clover, basswood, white clover and other flavors. Tell us what you want. Beekeepers who need more honey for their trade, and solicitors should write us. A. I. Root Co., 230 W. Huron St., Chicago, Ill.

FOR SALE—New crop comb honey, mostly buckwheat, 21-lb. cases and over at $4.00; 20-lb. cases at $3.80; No. 2, $3.50. Extracted at 75c per 5-lb. pail. Clover extracted, $1.00 per 5-lb. pail. Special prices on 20 pails or over. Chas. B. Hatton, Andover, R. F. D. No. 3, Ohio.

BLENDED raspberry and milkweed, two of the best honeys produced in northern Michigan. Left with the bees until thoroughly ripened. Unexcelled for table use. Price in 60-lb. cans, 15c per lb. In 10-lb. pails, postpaid, $2.50. Sample by mail, 20c, which may be applied on purchase of honey. Elmer Hutchinson & Son, Lake City, Mich.

HONEY AND WAX WANTED.

WANTED—Chunk honey in 5-lb. pails. J. E. Harris, Morristown, Tenn.

WANTED—White clover honey in 60-lb. cans. Mail sample and quote price. Roscoe F. Wixson, Dundee, N. Y.

WANTED—A car or less quantity of clover honey in 60-lb. cans. Mail sample and quote lowest cash price for same. A. W. Smith, Birmingham, Mich.

WANTED—No. 1 and fancy comb honey, clover and raspberry; also orange, clover and raspberry extracted. E. W. Peirce Co., 28 W. Main St., Zanesville, Ohio.

WANTED to buy amber and dark honey in 60-lb. tins. Name price and if interested will ask for sample. A. G. Woodman Co., Grand Rapids, Mich.

OLD COMBS, cappings of slumgum wanted for rendering by steam press process. We pay cash for wax rendered, trade for supplies or work it into foundation. W. T. Falconer Mfg. Co., Falconer, N. Y.

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade price, charging but 5c a pound for wax rendered. The Fred W. Muth Co., Pearl and Walnut Sts., Cincinnati, Ohio.

OLD COMBS WANTED—Our steam wax presses will get every ounce of beeswax out of old combs, cappings or slumgum. Send for our terms and our 1924 catalog. We will buy your share of the wax for cash or will work it into foundation for you. Dadant & Sons, Hamilton, Ill.

FOR SALE.

FOR SALE—Volumes of Gleanings from 1908 to date. Nic Klein, Hudson, Iowa.

HONEY LABELS—New design. Catalog free. Eastern Label Co., Clintonville, Conn.

FOR SALE—Cowan reversible two-frame extractor. Other supplies cheap. Gus Conradsen, Conover, Wis.

DO not buy pails and cans for honey until you read my cut-price circular. A. W. Smith, Birmingham, Mich.

CONNECTICUT and Rhode Island headquarters for Root's beekeepers' supplies. A. W. Yates, Hartford, Conn.

FOR SALE—Good second-hand 60-lb. cans, two cans to case boxed, at 60c per case, f. o. b. Cincinnati. Terms cash. C. H. W. Weber & Co., Cincinnati, Ohio.

ADAPTABLE BEEHIVES, single or double-walled, are sound in principle and are practical. For free information address Geo. P. Wood, Peekskill, N. Y.

HONEY-NUT CHOCOLATES. A new and delicious confection made of pure honey, nuts, fruits, etc., $1.00 lb., 50c ½ lb., postpaid. Wholesale prices on application. J. D. Kroha, 87 North St., Danbury, Conn.

HONEYMADE NUT CRUSH. A very delicious candy that every beekeeper should eat. Healthful and nourishing. Contains no cane sugar. Dozen 10c bars, $1.00, three dozen, $2.80, postpaid. Sell this candy to your honey customers at good profit. Will make special prices to agents, or will exchange for honey. Write now. Sawyer Bros., R. D. No. 3, Portsmouth, Va.

WANTS AND EXCHANGE.

WANTED—Barnes saw table. A. C. Ulmer, Fayetteville, N. Y.

WANTED—Two-frame extractor. State condition and make. Raymond Carpenter, Springvale, Maine.

WANT TO EXCHANGE package bees for a shotgun, preferred 16 gauge. Am also booking orders for the 4-lb. packages 1925. C. A. Mayeux, Hamburg, La.

WANTED TO EXCHANGE bee outfit for used Ford touring car and some cash. 40 hives Italian bees, guaranteed no disease, 110 extracting supers, all Hoffman 10-frame hives, wired, 50 excluders, 50 feeders, 2 tanks, etc. No good offer refused. H. L. Harris, Jefferson, N. Y.

BEES AND QUEENS.

WHOLE colonies of bees, if advertised for sale in these columns, must either be guaranteed free from disease or, if not so guaranteed, the exact condition of the bees and the conditions of sale must be clearly stated in the advertisement; or, it will be satisfactory if the advertiser will agree to furnish a certificate of health from some authorized bee inspector at time of sale.

HARDY Italian queens, $1.00 each. W. G. Lauver, Middletown, Pa.

BIG, bright Italian queens, 75c each, by return mail. P. B. Skinner, Greenville, Ala.

HIGH grade queens of quality, $1.00 each; $11.00 for 12. W. E. Buckner, Mt. Vernon, Ga.

ITALIAN queens, $1.00 each in season. Graydon Bros., R. F. D. No. 4, Greenville, Ala.

FOR SALE—Young queen bees, 3-banded Italians, $1.00 each. Jager Apiaries, St. Bonifacius, Minn.

PACKAGE BEES for 1925. Pure Italians. Write for descriptive price list. J. J. Scott, Crowville, La.

FOR SALE—Three-band Italian queens, untested, $1.00 each; six, $5.50; 12, $10.00. Tested queens, $2.00 each. Queens in larger quantities for requeening. Write for special prices on number wanted. Robt. B. Spicer, Wharton, N. J.

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FOR SALE—Three-banded, leather-colored queen bees. None better. Write for prices. M. Bates, Greenville, Ala, R. F. D. No. 4.

BRIGHT three-band Italian queens, $1.00; 6 or more, 75c. Write for quantity prices. Tupelo Apiaries, J. L. Morgan, Apalachicola, Fla.

BRIGHT Italian queens, 1, $1.00; 12 $10.00; 100, $75.00. Write for prices on package bees. T. J. Talley, Greenville, R. F. D. No. 3, Ala.

FOR SALE—Bright Italian queens, $1.00; 6, $5.00; 1-lb. package bees with queen, $3.00; 2-lb. package with queen, $4.50. Powell Owen, Greenville, Ala.

FOR SALE—200 colonies Italians, heavy stores, guaranteed free from disease, at Valdosta, Georgia. Great buy for $1000. A. J. Heard, Bonair, Ga.

GOLDEN ITALIAN queens, producing large beautiful bees, solid yellow to tip. Package bees, nuclei circular, 1924 ready free. Dr. White Bee Co., Sandia, Texas.

FOR SALE—Three-banded Italian bees and queens. One select tested queen, $1.50; one select untested queen, $1.00. Six or more, a liberal discount. J. Allen, Catherine, Ala.

TESTED QUEENS, $1.00 each. For the fall and winter months. Delivery guaranteed. Queens are mailed from my yards every month of the year. D. W. Howell, Shellman, Ga.

QUEENS from a hardy, prolific, non-swarming, honey-gathering strain of Italians, untested, each $1.00; six, $5.50; 25, $20.00. Good service given this month. J. B. Hollopeter, Rockton, Pa.

FOR SALE—21 colonies in Massie hives and equipment, $210.00. 19 colonies in 10-frame Langstroth hives and equipment, $190. Guaranteed free from disease. R. E. Cook, Renwick, Iowa.

DEAR CUSTOMERS—Accept our sincere thanks for your patronage and hearty co-operation, which is more than appreciated. Satisfactory services guaranteed at all times. W. C. Smith & Co., Calhoun, Ala.

FOR SALE—Three-banded Italian queens. Untested, 1 to 11, $1.00 each; 12 to 49, 85c each; 50 to 100, 75c each; tested, $2.00 each. Satisfaction guaranteed. Ready to ship June 1 to June 10. R. B. Grout, Jamaica, Vt.

AGAIN our northern-bred leather-colored Italian bees have wintered fine, and we guarantee that no disease exists in our yards. Queens after June 15, $1.25 each; $12.00 per doz. Charles Stewart, Johnstown, N. Y.

FOR SALE—Rule Brothers Straight-Line three-banded Italian queens, satisfaction guaranteed. Untested, $1.00; 25 or more, 90c; tested, $2.00; 25 or more, $1.75. Rule Brothers, Terlton, R. F. D. No. 1, Box 30, Okla.

THREE-BANDED bees and queens, government inspected. 2-lb. package with select queen, $5.00; select tested queens, $2.50; untested, $1.00 each or $10.00 per dozen. Carolina Bee Co., W. O. Curtis, Mgr., Rt. No. 1, Graham, N. C.

FOR SALE—80 colonies of bees, guaranteed free from disease, 4 acres of land, 4-room house, honey-house, power extracting outfit and other equipment. Good location in irrigated district. No failures. Write for particulars. W. C. Forcher, Grand View, Idaho.

FOR SALE—Choice bright Italian queens. I have been building up this strain for the last 20 years for vigorous hustlers, good winterers, gentleness and fine color. These queens will equal the best on the market. Health certificate goes with queens. Prices: 1 untested queen, $1.25; 12 untested queens, $12.00; 1 breeder, $5.00. Emil W. Gutekunst, Colden, N. Y.

PRICES right. Pinard's queens and package bees. Quality, satisfaction guaranteed. Young, laying, untested queens, $1.25. Two-pound package bees, $3.50. For larger lots write. Circular free. A. J. Pinard, Morgan Hill, Calif.

PURE Italian Queens by return mail. Reared in natural honey flow and strictly for business. The best are the cheapest. Let me prove it. July, August and September prices: one, $1.00; 6, $5.00; 12 or more, 75c each. J. E. Wing, Chico, Calif.

FOR SALE—100 colonies bees in 10-frame Jumbo hives, together with all equipment as extractor, supers, storage tanks, etc. No disease. Particulars if interested. Certificate of inspection will be furnished at time of sale. E. V. Tillson, Tillsonburg, Ont., Canada.

MAJOR'S Improved Italian Queens, $1.00 and $1.50. I'm using a breder from a colony which has gathered up to date this summer 320 pounds of clover honey. See page 548, August Gleanings. I'm filling orders by return mail. H. N. Major, South Wales, New York.

FOR SALE—46 colonies three-banded leather-colored Italian bees in 10-frame standard hives; all combs built on full sheets and wired frames. Hives in good condition, well painted and clean. All colonies guaranteed free from disease. 96 supers complete for 4 x 5 plain sections. C. R. Mohr, Delta, Ohio.

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